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FLORIDA ASSEMBLY NUMBER

Vol. I OCTOBER, 1938 No. 2

Transactions of the International College of Surgeons

(Founded in Geneva, 1935)

Published Under the Auspices of the United States Chapter

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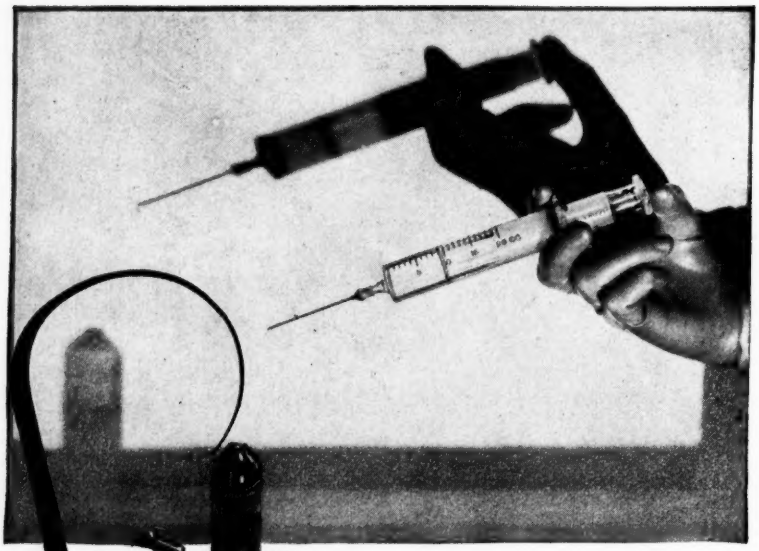

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PUBLISHED QUARTERLY BY
THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

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Editorials

INTESTINAL INFARCTION

THE term "infarction" is not well chosen. As defined by Dechambre and the classic writers, infarction means a macroscopic appearance *produced by embolism.* It therefore results from arterial or venous obstruction. In so-called intestinal infarction, neither embolism nor obstruction of the arteries or veins exists. The dark or bluish aspect of this lesion, not due to embolism, was first termed "unexplained infarction," a designation evidently intended to be provisional. My assistants and I began to study this condition in 1932, at the Saint Antoine hospital. Our first results were published in the *Journal International de Chirurgie.*

We noticed that the so-called infarction occurs suddenly, in a few seconds, and in the absence of any vascular obstruction. We therefore preferred the term apoplexy (from the Greek "I strike") to the term infarction. The lesion may be edematous or hemorrhagic, according to the degree of its intensity. It results, not from vascular obstruction, but from vaso-dilatation, which is so intense that it produces bursting of the capillaries and the accompanying venules. This being so, we proposed to counteract intestinal and pancreatic apoplexy, or at least the existing vaso-dilatation, by administering vaso-constrictive agents in order to restore the contractility of the capillaries. This treatment of intestinal and pancreatic apoplexy has proved to be very effective.

From the viewpoint of pathogeny, it is unnecessary to discriminate between different infarctions occurring in the lung, pancreas, intestine or other viscera. What we described in 1933 and 1934 concerning the causes, lesions and treatment of pancreatic and intestinal apoplexy applies equally to apoplexy of other viscera. Intestinal apoplexy is only one aspect of a general phenomenon which may occur in any organ. The idea that visceral apoplexy is a morbid process of general nature is contrary to ideas commonly accepted before our researches. Formerly, no link was supposed to exist between hemorrhagic pancreatitis due to a reflux of bile into the duct of Wirsung and post-operative broncho-pneumonia attributed to bacterial emboli, or separation of the normally inserted placenta through the effects of trauma, or testicular thrombosis, explainable only by torsion of the cord. In our opinion, all these various local apoplexies should be included in one group. Thus to the four major groups of morbid conditions, namely, infections, neoplasms, traumatic lesions and dystrophies, functional affections including apoplexy should be added as a fifth group.

The idea that visceral apoplexy could be of humoral origin was suggested to us in 1933, by a case of what was still termed at that time "inexplicable infarction." A man aged 62, affected with Quincke edema, suddenly experienced severe abdominal symptoms, resembling those of intestinal occlusion. Although the onset was very recent, the pulse could not be counted, the face was cyanotic and the blood pressure was only 70-90 mm. Hg. Such conditions do not usually occur at the beginning of intestinal occlusion. When the abdomen was opened, the in-

testine was found to be of a dark, blackish color over a length of nearly two meters. It could not be brought outside the abdomen; resection was impossible on account of the bad general condition of the patient. One milligram of adrenalin was injected hypodermically. The injection was followed immediately by a striking change in the appearance of the dark bowel, which resumed its normal pink color. Recovery was uneventful.

The surprising clinical picture suggested conditions occurring in severe anaphylactic shock. The similarity of the phenomena suggested the idea that various sudden tissular hemorrhages, until then unexplained, might be due to a common cause and referred to some humoral disturbance. In 1933, Roger Couvelaire and myself succeeded in producing pancreatic and intestinal apoplexy experimentally by anaphylactic shock. Our results showed that pancreatic hemorrhage is due to a cause identical with that producing the so-called unexplainable intestinal infarction.

Experiments were then made with the cooperation of Alexander Couvelaire on the testes, uterus, Fallopian tubes and ovaries of rodents. The results were identical and led us to believe that our theory was probably correct, and that the mechanism of apoplexy was generally the same, regardless of the organ affected. During attempts to induce experimental uterine or intestinal apoplexy, we obtained pulmonary apoplexy several times, the nature of which seemed to be the same as that of pancreatic, intestinal, testicular or uterine apoplexy. Later on, Pierre Duval and Binet, injecting polypeptids, also obtained pulmonary apoplexy. Clinical confirmation of our views soon followed. Our first operative case terminated fatally from cerebral hemorrhage 18 months after recovery from intestinal infarction. At the same time, Lerat, of Brussels, informed us of an identical case, occurring in a woman aged 52, who had recovered from intestinal infarction and died of cerebral hemorrhage six months later. We are aware that among neurologists there is nowadays a tendency to consider cerebral hemorrhage as often being due to a humoral process, the explanation of which on the basis of the classical mechanical theory seems unsatisfactory.

In 1934, we came to the conclusion that unexplainable infarction of the intestine, together with certain cases of infarction of the uterus, tubes and ovaries, is merely one of the manifestations of *anaphylactic shock*. Since then, experimental results published by several workers seemed to show that severe hemorrhagic processes could be produced by various mechanisms. In 1935, Reilly and his associates produced intestinal hemorrhage in laboratory animals by depositing the endotoxin of the typhoid bacillus in the splanchnic nerve. Junckerre of Brussels, obtained similar results in 1936 by inducing the Sanavelli-Schwarzman phenomenon upon the intestine. So also did Gastinel, in 1936, while testing the effects of streptococcic toxin. Chemincal, and even inert substances proved capable of producing the same effects, as was shown by Laporte and Pham, in 1935, with cobalt nitrate and by Justin-Besancon with lycopodium powder and pulverized pumice stone. The aim of the authors just quoted was not to explain infarction in the absence of vascular lesions, nor to apply the same pathogenic interpretation to all forms of sudden, overwhelming hemorrhage. They simply observed that hemorrhage of variable degree occurred whenever the terminations or trunk of a visceral sympathetic nerve was stimulated by an irritant. Sudden tissular hemorrhage can therefore be obtained by means other than anaphylactic shock.

Irritation of the neuro-vegetative system determines acute dilatation of the visceral capillaries, which may produce capillary rupture and infiltration of blood into the tissues. Platelets accumulate in the ruptured capillaries. Their

number, as shown by Roskam, diminishes in the circulating blood during hemoclastic shock and returns to the normal when the shock is over. The effect of blood stasis in the abdominal organs is to lower the blood pressure and to produce cyanosis. The stasis may reach such a degree that the blood expelled from the heart is dangerously reduced and that death may ensue, as pointed out by Laubry and Tzanck.

Ch. Richet and Arthus have shown that shock may be generalized or localized, according to the experimental method employed. Visceral apoplexy, whether intestinal, pancreatic, uterine, testicular or pulmonary, is the effect of blood-stasis through vaso-dilatation induced by irritation of the neuro-vegetative system. Prolonged and extensive stasis may result in tissue asphyxia and total of partial death of the organ which is affected.

The consequences of apoplexy must therefore differ widely, according to the affected organ. The gangrenous or necrotic portion becomes spontaneously eliminated. From the intestine, the contents are discharged into the peritoneum; from the pancreatic ducts, ferments escape which produce fat necrosis; in the blood-filled pulmonary alveoli hematosis is interfered with and anoxemia ensues. *I am inclined to think that all such processes ought to be grouped together.* They differ only according *to the site and function of each organ. Fundamentally, their origin is identical.*

In intestinal apoplexy due to hemorrhagic shock, the natural course of events includes gangrene or necrosis, perforation, and death from peritonitis. Treatment should be guided by consideration of the existing shock and necrotic process. The degree and severity of the shock must first be determined and the amount of alteration produced in the affected organ must be ascertained. It is of vital importance to institute treatment of the shock without delay and, equally without delay, to determine the nature and extent of the intestinal lesions.

Since apoplexy consists of paresis of the capillary walls, with blood stasis, the contractility of the vessels should be restored by vaso-contrictive therapy, adrenalin being by far the most effective remedy at our disposal. Since stasis produces necrosis of the intestinal wall, the surgeon should immediately ascertain the condition of the intestinal wall. If the dark appearance of the affected intestine becomes normal under the hypodermic action of adrenalin, whose initial dose of 1 milligram may be repeated as needed, the intestine may be replaced and the abdomen may be closed. If the intestinal condition remains doubtful, the affected loop should not be at once replaced, but should be left outside of the abdomen for observation. If the loop is already necrotic, there is but one resource, namely, resection.

Prof. Dr. Raymond Grégoire,
Paris, France.

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THE GALL BLADDER

THE proper management of the surgical gall bladder demands a selection of those types of cases which experience has proved show a good percentage of satisfactory results. In cholecystic disease associated with cholelithiasis, surgery gives excellent results unless marked complications are present or an inadequate operation has been performed. Those cases without associated cholelithiasis, a colic syndrome, or advanced pathological changes, not so infrequently leave much to be desired. This does not necessarily mean that the mildly infected gall bladder which has given rise to definite symptoms and which has not responded to medical management should not be removed. If proper conservative treatment has failed and the patient is fully aware of the probabilities of success or failure as balanced against his digestive distress and discomfort, no criticism should fall when surgical treatment does not give a completely satisfactory result. Too, consideration must be given to the infected gall bladder which acts as a focus of infection, playing a role in coronary or myocardial disease or damaging or interfering with hepatic function. The jaundiced patient taxes all of our faculties, and the differential diagnosis of non-surgical jaundice is many times difficult. Lately, the glucose tolerance curve has proved of some added assistance here. The general condition of the jaundiced patient can be improved before operation by increasing the carbohydrate intake and giving blood transfusions; the tendency toward hemorrhage may be diminished by the recently advocated administration of viosterol or alfalfa extract rich in vitamin K in addition to bile.

During the last few years, more attention has been directed toward "the remaining common duct stone." More frequent exploration of the common duct and immediate cholangiography have shown that in the past many stones have not been identified in the common duct at the time of operation. Delayed cholangiography should be carried out routinely in every case with a catheter or T-tube in the gall bladder or common duct. A surprise may await the most diligent and experienced, and mystery confound the surgeon who fails to make this observation at the opportune time, and he will later wonder why the distress, colic or jaundice occurs. All biliary fistulae should likewise be explored with a contrast medium and X-rays. Sufficient evidence has been brought forth to prove the clinical existence of spasm of the sphincter of Oddi, that reflex inhibition and excitation states must be carefully considered in both gall bladder disease and postoperative biliary tract disturbances. Spastic biliary dyskinesia or dyssynergia is by far the most common offender. Drugs such as atropine, nitroglycerin and trasentin have been useful in the management of biliary colic, and alternating these has at times proved beneficial. Morphine must still be used as a supplement in many instances to relieve pain. Stasis within the biliary tract, associated with thick inspissated bile, mucous plugs, blood clots or remaining common duct stones, probably accounts for a fair number of the poor surgical results; and a biliary flush afforded by administration of dehydrochloric acid in conjunction with relaxing agents or antispasmodic drugs for the sphincter area has frequently proved most satisfactory in relieving distress. If this biliary regimen is to be used postoperatively, immediate cholangiography at the table is not necessary as the smaller and medium size stones may be removed by this method. However, it can still be used to advantage in selected cases.

A more critical analysis of all our cases, proper preoperative management and adequate consideration of the post-

operative phase will do much to aid us in achieving the perfect result.

R. Russel Best.

DISPERSION OF REPRESENTATIVE POWER

PROBABLY at no time in the history of medicine our profession has been confronted with such complex problems as are contained in the present agitation for so-called socialized medicine in the United States.

Much capital is made by the enemies of organized medicine and proponents of many radical reforms that the American Medical Association only represents 50% of the profession.

It is overlooked that it is this organized 50% that deserves credit for all medical progress and for raising the standards of medical education to a level that today is the envy of the world. It is this organized 50% that has carried on the fight for greatest advancements in preventive medicine. Of all these activities the greatest beneficiary is the public. This is eloquently shown by the increased span of human life in this country.

Our profession should speak with a unified voice, and that representative voice, in this country, is the American Medical Association and the Journal so ably edited.

Every special Society, every College, should, like our Chapter, prescribe Fellowship in the A.M.A. as a primary requirement.

To prevent the dispersion of representative power all organizations should refrain from passing resolutions, appointing Committees to deal with any of the problems of social and public relations of the profession and should make it emphatically known that all these matters are entrusted to the American Medical Association.

A house divided against itself cannot stand, and above all, we should not speak with many discordant voices; representative power dispersed in this manner will be powerless to protect and will fail to represent the purposes and aims of the profession.

Vincent A. Lapenta.

"F. I. C. S."

THE founders of the International College of Surgeons have set a standard of efficiency for Fellowship which is a challenge to every "Surgeon" worthy of the name.

In America during the past few years it has become customary for the specialist in Surgery to be a Fellow of the American College of Surgeons and certified by one of the American Board. There is a concerted effort for friendly co-operation between the American Medical Association, The American College of Surgeons and The American Hospital Association in maintaining the high standard of Surgery in approved Hospitals.

The International College of Surgeons goes a step further by requiring: "He must have contributed original articles on Surgery which have appeared in approved Medical Journals" and "Before approval the Regent will personally observe the work of candidates while they are operating."

It is the aim of the International College of Surgeons to co-operate with all Colleges now in existence. For the convenience of the profession, I suggest the Fellows include "F. I. C. S." in the Blue Book of the American College of Surgeons.

W. J. Carson, F.A.C.S., F.I.C.S.

PREPARATION OF THE JAUNDICED PATIENT FOR OPERATION*

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OPERATIONS on the gall bladder and biliary tract not uncommonly bring to light some serious defects in other organs which are closely associated in function. In order to provide the greatest safety for patients a thorough study and preparation of each is necessary. When jaundice complicates the picture of biliary tract disease, it lends gravity to the situation and its very presence demands that all precautionary and rehabilitative measures which should precede every other major operation should be used; and in addition, certain specific measures are indicated to combat the effects produced by the retention and absorption of bile.

The retention and absorption of bile pigment stains the blood plasma, skin, tissues, sclerae and mucous membranes. The degree or depth of staining by bile pigment is not a reliable measure of the portentousness of the underlying pathological condition. The disease which initiated the heaping up of bile in the blood plasma and tissues is further aggravated by one or a combination of the following: First, the retained bile in the blood and tissue fluids produces certain ill effects on the body cells. Second, a state of liver dysfunction exists and either initiates, accompanies or follows the jaundice. Third, the lack of bile in the intestinal tract is followed by disturbed secretory and absorptive functions which normally obtain in its presence.

We are particularly interested in obstructive jaundice which is the type usually amenable to surgery. In this type of jaundice the outcome bears a close relationship to the location, degree and duration of the obstruction, the previous condition of the liver and the functional capacity of the gall bladder. This concept is interestingly illustrated in experimental work and clinical practice.

In healthy young dogs one may divide the common duct and suture the ends to prevent the passage of any bile into the intestine. Animals so treated not uncommonly survive the experiment for periods of over a year (3). Their tissues become deeply stained, but if they are fed properly the dogs remain well much longer than would be expected.

An instructive corollary is found in clinical practice in cases of obstructive jaundice caused by tumors in or about the ampulla of Vater. In these patients a severe obstruction often exists in the presence of a previously undamaged liver and gall bladder. This obstruction is usually much better tolerated and offers less immediate surgical risk because the liver is relatively free from functional and organic disturbance and the gall bladder still functions. Although biliary flow is stopped and bile pigment piles up in the blood stream, there is an interval of some duration during which there remains enough of the secretory and metabolic functions of the liver to weather the ordinary surgical storms.

In common duct obstruction by stones, usually associated, as it is, with a shrunken damaged gall bladder, the liver also has participated in or has actuated the functional upset and a varying amount of liver deficiency may usually be assumed in these cases. The pathologic physiology which accompanies this type

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*Read at the Southern Assembly of the U. S. Chapter of The International College of Surgeons, February 28, 1938.

of jaundice has a tendency to further narrow whatever margin of safety exists.

It is unfortunate that no relatively simple test will reveal the true state of the liver or indicate the damage present in those organs closely associated in function (37). Ivy (9) is convinced that they offer definite help in many cases. He says, "I should never operate on the biliary tract of a jaundiced or non jaundiced patient without performing beforehand *an hippuric acid test or bromsulphthalein or galactose liver function test, and determining the bleeding time and the coagulation time of the blood*, except when emergency is definitely indicated."

When confronted by a jaundiced patient who must undergo a surgical operation, the surgeon must avail himself of every aid to insure success.

The problem of preoperative preparation entails, first, improving or restoring those functions of the liver which have been impaired or lost, and second, aiding, as far as possible, the defense mechanisms which have suffered directly or indirectly from the pathologic crisis exhibited in the biliary tract.

HEMOCOAGULATION FACTORS

An intensive study has been made of the various blood coagulation factors in jaundice (7). No accord has been reached as to the actual cause of the bleeding dyscrasias so frequently encountered (19). There is no single method of predicting a bleeding tendency which is applicable to all types of hemorrhagic diathesis (4). In the various types of bleeding, it is probable that many factors are responsible and that different tests are required to demonstrate the bleeding tendency in each (46). Thus, in purpura the platelet count, in hemophilia the Howell method of coagulation time determination, are the most reliable methods of predicting a bleeding tendency. In jaundice, neither of these nor the Biffi, nor Bog, nor Lee and White method of determining the coagulation time, nor the ordinary Duke method of determining the bleeding time, nor the fibrinogen content, nor the prothrombin content, nor the total calcium nor the sedimentation rate are reliable.

Boyce and McFetridge (21) have outlined a test which they consider reliable in establishing the bleeding tendency in jaundice. The test takes into consideration the firmness, retractility and similar characteristics of the clot, but the principle factor is the ratio of the serum volume to the blood volume. A serum volume index is used as the measure of the bleeding tendency.

The writer has found the Ivy bleeding time test of great value in predicting a hemorrhagic diathesis in the jaundiced patient. This test is performed as follows: A blood pressure cuff is applied to the upper arm raising the pressure to 40 millimeters of mercury and maintaining it for one minute prior to making a 2.5 millimeter puncture on the forearm with a mechanical stylet. When the pressure is maintained at 40 millimeters, the upper limit of bleeding in a normal individual is approximately 240 seconds. In most instances it is less than 180 seconds. McNealy, Shapiro and Melnick (4) studied 810 cases of jaundice which were admitted to Cook County Hospital during a period of 14 months. In 64 cases with common duct stone and jaundice, thirty-seven, or 57 per cent, had an abnormally prolonged bleeding time. The Duke bleeding time averaged 125 seconds, but the Ivy bleeding time averaged 330 seconds. In 24 surgical patients with carcinoma of the liver or of extrahepatic bile ducts, ten, or 41 per cent, showed a bleeding tendency. Six gave a history of bleeding. The Duke bleeding time averaged 120 seconds, the Ivy bleeding time 430 seconds.

It would seem that a fairly reliable index of the bleeding tendency may be had in the routine use of the Ivy bleeding test. Improvement in the bleeding time

as shown by repeated Ivy bleeding tests is of considerable aid in prognosis.

Methods designed to facilitate and stabilize the clotting of blood, as well as decrease the bleeding time in jaundiced patients must for the present rest almost wholly on empirical practice. A review of literature reveals a great diversity of opinion as to the factors whose variations are related reliably to changes in the bleeding tendency.

Naffziger (13) and his associates have shown that the blood plasma content of sulphur compounds is increased in obstructive jaundice in dogs and in man. They suggest that it is possible that the defect in coagulation is caused by retention in the blood of certain of the organic sulphur compounds which are anticoagulants. They indicate that the metabolism of those sulphur compounds can be decreased by a minimum maintenance diet of protein, by complete rest and by the use of large amounts of carbohydrate in the diet.

BLOOD TRANSFUSIONS

In the presence of jaundice with its associated hepatic damage, blood transfusions have a favorable influence. More hemoglobin is supplied, thus increasing the oxygen capacity of the blood. There is a better saturation of the arterial blood with oxygen which occurs either as a result of an improvement in the general circulation or in some change in the character of the blood. There also occurs an increase in the functional capacity of hemoglobin. In discussing the value of blood transfusions in jaundiced patients, Judd (29) refers to the work of Rich who noted atrophy of cells around the central veins of the hepatic lobules, presumably the result of an oxygen deficiency. Anoxemia results in liver damage and the damaged liver in turn perpetuates the anoxemia by its limited production of oxygen carrying hemoglobin. The vicious circle should be interrupted by early blood transfusions. In most cases one or two, or in desperate risks, even more transfusions of 500 cc. of blood should precede surgery.

VITAMIN THERAPY

The liver plays an important role in vitamin synthesis and storage. In the jaundiced patient the liver may be damaged so that absorption, synthesis and storage of vitamins may be deficient. If adequate bile does not reach the intestinal tract there occurs a marked disturbance of fat digestion and absorption. Ingested fat appears in large quantities in the feces of animals whose bile is diverted from the intestinal tract. It is reasonable, therefore, to expect those vitamins which are fat soluble to be excreted along with the undigested fat. The best known fat soluble Vitamins are D, K and A.

VITAMIN D

The functions of Vitamin D are to facilitate the absorption of calcium and phosphorus from the intestine and maintain the level of calcium and phosphorus in the blood (32). It increases the net retention of calcium in the body in ordinary doses. Like Vitamin A, its absorption rate from the intestine bears a distinct relation to the fat absorption rate which in turn is dependent on the presence of bile in the intestinal tract. This fact was established by Greaves and Schmidt (38) in 1932 and confirmed by Taylor in 1935. The importance of an adequate Vitamin D absorption has been established in clinical practice by the work of McNealy, Shapiro and Melnick (4) and further substantiated by the recent work of Johnson (51) and by Boys (35) of Ann Arbor. The method of administration commonly employed is to give 30 drops of Viosterol, 250 D, three times a day. Viosterol is usually administered in conjunction with the carotene and commercial ox or pig

bile as described under Vitamin A therapy.

VITAMIN K

Quick has called attention to the low prothrombin content that is present in many diseases which show hemorrhagic tendencies. This prothrombin content of the blood must fall below 20% of the normal before a serious hemorrhagic tendency is produced. Attention has been called to the influence of Vitamin K on the prothrombin of the blood. Quick states that in jaundiced patients with reduced levels of prothrombin only a small number suffer from Vitamin K deficiency. The absence of Vitamin K in the diet of chicks produces a marked hemorrhagic tendency. This was first demonstrated by Dam and his co-workers. Snell has recently used Vitamin K derived from putrified fish meal. This vitamin is present in alfalfa, hog's liver, fish oil and soy beans. It is necessary to give bile along with this vitamin to insure its absorption. Probably the easiest way to restore a low prothrombin level and supply Vitamin K is to give blood transfusions.

VITAMIN A

Vitamin A acts by increasing the ability of the body to resist disease (33). It is suggested that it has to do with the maintenance of intact, healthy epithelial membranes which constitute the first line of defense against bacterial invasion. The principal source of Vitamin A is in fats of animal origin. Schmidt and his coworkers presented evidence that absorption of Vitamin A, in the form of cod-liver oil, occurs in the absence of bile in the intestine but beta carotene, the precursor of Vitamin A, is not absorbed in the absence of bile. Since cod-liver oil is not an item in the average diet, it is likely that the Vitamin A intake is almost wholly ingested in the form of carotene. As a precautionary measure against deficiency it would appear that Vitamin A in concentrated form should be administered as a routine part of the preoperative preparation in those patients who give a history of long standing gastro-intestinal disturbances and especially in those who show a low blood platelet count. In severe obstructive jaundice it may be given parenterally or if given orally it should be administered along with bile salts. It has been our practice to use commercial ox or pig bile in 5 to 7 grain doses three times a day. Our use of commercial ox or pig bile seems warranted because Horrall (15), Still and their associates, have analyzed a number of these products and find them to contain sufficient bile acids and salts to act on the fats in the alimentary canal and enhance the action of lipase.

OTHER VITAMINS

VITAMIN B

Deficiency of B_2 also produces mental changes, skin desquamation and gastro-intestinal disturbances. McGarrison states that Vitamin B deficiency causes gastro-intestinal changes similar to colitis. Common symptoms are anorexia, weakness, vague pains, indigestion and hypotonicity of the bowel. McGarrison states further that many of the gastro-intestinal disorders of today are due to deficient and ill-balanced diets. He suggests that the health of the alimentary canal is dependent on Vitamin B and C.

VITAMIN C

Vitamin C is the water soluble anti-scorbutic element which occurs in fresh foodstuffs; fruit juices, vegetables; and found in small amounts in fresh milk and raw meat juice. The absence of Vitamin C from the diet produces a condition known as scurvy whose characteristic symptom is hemorrhage. The hemorrhages may be due to changes in the vessel walls. It is possible that Vitamin C controls the nutrition of the endothelium of the capillaries (31). At the present time estimations are being made of the cevitamic acid concentration in the blood of all patients suffering from gall

bladder disease who are admitted to our service at Wesley Memorial Hospital.

It is possible that this may be an important hemorrhagic factor in some jaundice cases. It is, at least, an indication for regular estimation of Vitamin C in chronic cases and if a deficiency state is found, it should be corrected. Orange juice sweetened with glucose will be efficient if the patient can take food by mouth. If parenteral administration is necessary it may be given subcutaneously in daily .025 to .050 milligram doses of cevitamic acid until a normal blood level is reached.

VITAMIN P

A less well known vitamin has been designated "citrin" or Vitamin P. It occurs in lemons and red peppers. Deficiency of this factor causes increased permeability of capillaries.

CALCIUM THERAPY

There is undoubtedly a disturbed calcium metabolism in jaundice but its relation to bleeding is not settled (50). It is suggested that the bile pigments in excess that circulate in jaundice readily form compounds with calcium, so that it is possible they may alter the distribution and "mobility" of this essential element (27). Blood calcium determinations are of little or no value in determining the bleeding tendency. Ivy (7) states that following the lead of Mayo-Robson (39), Walters (49), Judd (30) and others (12, 45), the preoperative administration of calcium is widely used. Cantarow, Dodek and Gordon (11) have demonstrated an increase in calcium excretion in jaundiced patients. Walters and Bowler (47) have shown that twice the amount of calcium salt must be injected to raise the calcium level to normal in a jaundiced patient as would be required in a normal individual. Rewbridge and Andrews (42) have shown that injecting calcium increases the blood sugar level. Wright and Cowan showed that injection of sugar increases the blood calcium level. Giving either, therefore, raises the other and it is perhaps impossible to say which is of the greater importance. Hence, the administration of both in adequate amounts seems logically indicated (43). Regardless of whether the bleeding tendency in jaundice results from calcium defect in the clotting mechanism or depends on an increased permeability of capillaries over which calcium exerts some favorable influence, there seems to be ample evidence that calcium exerts a beneficial influence in jaundice.

The proper quantity and mode of administration of calcium varies considerably with different writers (12). In most instances a more rapid and intense effect is had by the use of soluble salts intravenously. Those most commonly used are 10 per cent solutions of calcium chloride or calcium gluconate.

GLUCOSE THERAPY

Glycogen storage and mobilization is an exceedingly important function of the liver (26). While muscle glycogen comprises the largest amount of stored carbohydrate in the body, it is the liver glycogen which is first depleted by fasting. It has been shown repeatedly that livers with a low glycogen content are more susceptible to injury. The ability of the liver to store glycogen is an index of its functional capacity. This organ may store as much as 300 grams (10 ounces) of glycogen readily subject to glycogenolysis with formation of glucose. The value of selective diet in jaundice is emphasized by the experimental work of Mann and Bollman (1) who showed that jaundiced dogs failed to survive a diet of meat for more than a brief period but would live several months on a diet of milk and syrup. A diet high in carbohydrates should be given where the patient can take food. It has been our practice to allow the patient to have a rather liberal diet if no vomiting or colic is present. The liberal use of cereals, gruels, jellies,

jams, syrups and fruit juices is encouraged. Green salads and fresh citrus fruits are given with dressings of a very palatable type made with mineral oil. The protein side of the diet should be limited to milk and egg proteins (23). Where food cannot be taken or urgency exists, it becomes necessary to resort to parenteral glucose administration. The practice of giving glucose solutions per rectum is of doubtful value. In studies made by the writer and others, it was shown that little glucose is absorbed from the colon (5, 6).

It would seem more practical to administer glucose either subcutaneously or intravenously. A 5 per cent solution in distilled water properly buffered may be used for either. The amount and rate of administration demand some caution. When given intravenously the rate should not exceed 2 drops per second and should preferably be slower. The usual practice is to give about 3000 to 4000 cc. of a 5 per cent solution in 24 hours. The urine is tested frequently the first and second days of use and if no sugar appears in the urine, tests are made daily thereafter. The initiation of glucose therapy *should not be delayed* until the last minute and then pushed so rapidly that untoward reactions appear and much of the sugar spills over in the urine. It should be started as soon as the patient becomes a surgical prospect and continued until the convalescence is definitely established and the patient is able to ingest a near maintenance value of easily assimilable carbohydrates.

The use of insulin to facilitate glycogen storage is suggested by Lukens (22) who states that glucose and insulin together produce the maximum storage of glycogen in both normal and diabetic animals. In diabetics or those patients with low sugar tolerance, the intravenous glucose is covered with insulin. Where diabetes is present one should guard against excessive doses of calcium because of its tendency to raise blood sugar levels. *Insulin is not used in routine cases.*

WATER BALANCE

The importance of maintaining water balance in surgical patients has been stressed by Coller and others (24, 25). In the jaundiced patient it is necessary to maintain this balance and to favor elimination. If adequate amounts of fluids cannot be taken by mouth then plain tap water by proctoclysis will serve adequately in most cases. Where some impairment of renal function exists it is better to use tap water than normal salt solution per rectum. In patients whose 24 hour output of urine is less than 1000 cc. and no serious kidney lesion can be demonstrated, the intravenous administration of 500 to 1000 cc. of 10 per cent glucose may increase the urine output. Faltitschek and Hess (14) point out that cellular impairments of the liver, if they reach a severe degree, cause disturbances in the water balance. They suggest that there is also a renal factor concerned in the disordered water economy of patients with liver disease. Here again there probably is a vicious circle whose interruption may prove a considerable task. *Every jaundiced patient should have* regular preoperative urinalyses. *Where* the jaundice is severe or has existed for some time or the kidneys show a diminished output in the presence of adequate intake, the functional capacity of the kidneys should be investigated and blood chemistry studies made. Means to combat nitrogenous retention and oliguria are those commonly employed in renal dysfunction without jaundice. Coller (24) has shown that at least 3000 cc. of fluid must be introduced in each 24 hours to maintain a water balance. This may be done orally, subcutaneously, or per rectum as indicated.

SUMMARY

The preparation of the jaundiced patient includes all of the precautionary

and rehabilitative measures which should precede every major operation.

In addition it should include measures directed toward a reduction of the hemocoagulation time and the bleeding time.

The diet should be rich in carbohydrates and poor in proteins.

The water balance should be regulated.

In chronic cases blood chemistry studies should be made where there is indication of disturbance of renal function.

Glucose should be administered in adequate amounts. An isotonic, properly buffered solution in distilled water may be used intravenously or subcutaneously.

Normal salt solution should be given in sufficient amounts to overcome the loss of salts by vomiting or diarrhea.

Blood transfusions are of definite value.

The use of calcium salts intravenously is indicated.

Vitamin deficiencies should be corrected by the administration of fat soluble Vitamins A, D and K and the water soluble, Vitamin C.

Orally administered bile preparations are used to facilitate the absorption of the fat soluble vitamins.

CONCLUSIONS

The proper preoperative care of the jaundiced patient will reduce the mortality in these cases.

In no case should the surgeon assume the burden of operating these patients without first assuring himself that every effort has been made to protect the patient from hazards signalized by the symptom complex of jaundice.

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RÉSUMÉ

On aura recours à toutes les précautions et à tous les procédés réhabilitants qui sont de rigueur dans la grande chirurgie. Et, en plus, on prescrira un régime pauvre en protéine, on réduira le temps de coagulation sanguine et on fera ingérer aux malades de grandes quantités d'eau. Dans les cas d'insuffisance rénale, on fera l'examen chimique du sang et on agira en rapport avec les trouvailles du laboratoire. Une solution isotonique de glycose en eau distillée sera employée intraveineusement et hypodermiquement.

Du serum artificiel sera administré en quantité suffisante pour suppléer aux pertes produites par les vomissements, par la diarrhée.

Les transfusions sanguines ont une valeur reconnue.

Les injections intraveineuse des sels calciques sont indiquées.

On corrigera la carence vitaminale par l'emploi des vitamines A, D et C.

Par bouche, on fera prendre aux malades des préparations biliaires. Elles

facilitent l'absorption des vitamines adiposobubles.

ZUSAMMENFASSUNG

Die Vorbereitung von ikterischen Patienten umfasst alle Vorsichtsmassregeln, wie sie bei jedem bedeutenden Eingriff vorgenommen werden und darueber hinaus Massnahmen, die die Herabsetzung der Blutgerinnung und Verkuerzung der Blutungszeit bewirken sollen, sowie eine proteinarme Diet und schliesslich eine Regulierung des Wasserhaushaltes.

In chronischen Faellen mit Anzeichen von Stoerungen der Nierenfunktion sollten chemische Blutuntersuchungen vorgenommen werden. Angemessene Mengen von Glukose sollten verabfolgt werden; eine isotonische, entsprechend gepufferte sterile Loesung in destilliertem Wasser kann intravenoes oder subkutan injiziert werden.

Physiologische Kochsalzloesungen sollten in genuegender Menge gegeben werden, um den durch Erbrechen oder Durchfaelle entstehenden Wasserverlust zu decken.

Bluttransfusionen besitzen unzweifelhaften Wert.

Intravenoese Verabfolgung von Kalziumsalzen ist angezeigt.

Vitaminmangel sollte durch Verabreichung von feltloeslichem Vitamin A und D sowie wasserloeslichem Vitamin C ausgeglichen werden.

Perorale Gaben von Galle (kommerzielle Ochsen-und Schweinegalle in den Faellen des Autors) werden benutzt, um die Aufnahme der fettloeslichen Vitamine zu erleichtern.

SUMARIO

La preparación de un enfermo con ictericia incluyee precauciones y medidas rehabilitatívas las cuales deben de preceder en cada operación major, y además, medidas que reduscan el tiempo de la coagolubilidad sanguínea, dieta pobre en proteinas, y regulación del balance de agua.

En casos crónicos, donde hay indicación de trastornos de la función renal, estudios de la química sanguínea deben de hacerse. Una cantidad adecuada de glucosa debe de administrarse. Un isotónico con la propia solución buffer en agua destilada puede usarse intravenosa ó subcutaneamente.

Solución salina normal, en cantidades suficientes para arrestar la perdida por el vómito y diarrea, debe de ser administrada.

Transfución de sangre son de un valor definído.

El uso de las sales de calcio intravenoso es indicado.

La insuficiencia de vitaminas deben de ser corregída por la administración de grasa soluble vitamina A y D y de agua soluble, vitamina C.

La administración oral de preparaciones de bilis (bilis comercial de buey y cerdo en los casos del autor) son usadas para facilitar la absorción de las vitaminas grasa soluble.

RIASSUNTO

La preparazione preoperatoria di pazienti con ittero richiede tutte le misure precauzionarie necessarie per ogni intervento di maggiore entita', oltre a misure per controllare la coaugulazione del sangue e la tendenza emorragica, dieta limitata in proteine e regolazione del bilancio idrico.

In casi cronici, con associati disturbi renali sara' necessario studiare il tasso glicemico dei prodotti finali del metabolismo proteico e necessario somministrare quantita' adeguate di soluzioni saline glucosate.

La transfusione di samgue e' di definito valore.

L'uso di sali di calcio per via endovenosa e' indicato.

Le carenze vitaminiche debbono essere controllate con adeguate dosi di vitamine.

La somministrazione per os di bile e prodotti biliari e' usata per facilitare l'assorbimento dei grassi e delle vitamine liposolubili.

HYPERPARATHYROIDISM IN HYPERTHYROIDISM

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IT has long been suspected that thyroid diseases had some etiological relationship to chronic rheumatism and chronic non-specific arthritis. Kocher was of the opinion that "thyroid deficiency" appears to be a contributing etiological factor in certain forms of chronic non-specific arthritis. However, little is known about these forms: they appear to be the result of lowered vital phenomena induced by hypothyroidism.

More attention has been paid to chronic rheumatism and chronic non-specific arthritis in conjunction with "thyrotoxicosis."

Already in 1891, von Recklinghausen, and in 1892, Koeppen, while in 1901, Latzko had observed decalcification of the skeleton in thyrotoxic patients.

Various authors have studied the calcium and phosphorus content in thyrotoxic goiter; their views are rather contradictory. Some claimed that calcium and phosphorus excretion was exaggerated; some claimed that it was not.

Parhon, in 1912, showed that intensive thyroid feeding to rabbits produces a marked loss of calcium.

Kummer, in 1917, studying a thyrotoxic patient, found that the urine-calcium excretion was normal, but fecal-calcium elimination was quite high.

Falta, in 1927, and others reported that thyroid feeding increased phosphorus elimination. As phosphorus and calcium are bound together in the form of calcium phosphate, it follows that if phosphorus is increased, an exaggerated calcium excretion is bound to also occur.

In 1929, Aug, Bauer, Heath and Ropes found that in 8 cases of exophthalmic goiter calcium elimination was increased 231 per cent. The average metabolic rate was plus 55. A definitely increased calcium output was observed similarly in two toxic adenomata. Calcium elimination returned to normal after thyroidectomy. Iodine treatment prior to the operation reduced considerably the calcium elimination.

The authors referred to were unwilling to rest their conclusions upon these observations. They fed thyroid extract (42 grains) for four days to two normal individuals and on the fifth day gave 10 mg. thyroxin intravenously. Ten to twelve days later symptoms of hyperthyroidism became quite marked; the basal metabolic rate rose to plus 48. Study of the calcium excretion at that time showed that calcium excretion had more than doubled.

Finally, the same research workers reasoned that if the calcium output is exaggerated in hyperfunction of the thyroid, it must be diminished in hypothyroid cases. To that effect they selected six cases of myxoedema and found that calcium elimination was reduced 40% and that thyroid medication was effective in bringing this calcium elimination within normal range.

Thinking that exaggerated calcium elimination might be due to the elevated metabolism, they selected 2 cases of bacterial endocarditis and one case of lymphatic leukemia with high metabolism. They found no increased calcium elimination. Thus the thought that the elevated basal metabolism was a possible

*Read before the Southern Assembly of the United States Chapter of the International College of Surgeons, held at Tampa, Florida, February 27-28, 1938.

cause of the hypercalcemia was dismissed.

The same authors found that in hyperthyroidism there was also an exaggerated excretion of phosphorus in the form of tertiary calcium phosphate. This might well account for the origin of the eliminated calcium.

Berencsky, in 1930, has observed that in thyrotoxic patients the administration of 1 unit of parathormone per kilogram of weight increases enormously the blood calcium. He calls this response, the "parathyrogene reaction," which is regarded by him as typical of the disease, because if the same is given to a normal individual little or no calcemia occurs. The author thinks that thyroxin sensitizes the body tissue to parathormone.

Michaud (1930) also reported increased calcium elimination in thyrotoxic goiter. Labbe, Nepveux and Solomon, in 1930, have examined a number of patients with thyroid disease and have used the method of Hirth in which an oxalate of calcium is formed after the phosphates, iron and magnesium have been removed. The precipitated calcium oxalate is calcined and the calcium is then determined.

It was found that the blood calcium ranged under normal conditions between 92 and 98 mg. per liter with an average of 95 mg. In patients with Basedow's disease it varied from 106 to 92 mg. per liter with an average of 99.9 mg. In para-Basedow's disease the calcium varied from 101 to 96 mg. per liter with an average of 99.4. From these results it may be concluded that the blood calcium is not or little modified and varies within normal limits in these diseases.

In 1934, Duncan called attention to the fact that considerable divergence of opinion exists as to the etiology of the chronic non-specific arthritis that occurs in thyrotoxicosis. "It would appear that the abnormalities of the joints are not due to a specific toxin eliminated by the thyroid gland. Whether or not the individual in the presence of hyperthyroidism becomes sensitized to infections, which in a large proportion of instances have been found to be present is a moot question. It would appear logical to believe that such periarticular changes are the result of trophic disturbances initiated by the hyperactive thyroid gland through the vegetative nervous system. In conclusion, Duncan states that divergent manifestations of thyroid dysfunction are productive of articular disturbances that can be looked upon as being characteristic of those altered physiological states. Hyperthyroidism is accompanied by capsular and periarticular changes, which, if inadequately treated, lead to an atrophic polyarthritis with characteristic contractures. These changes are highly amenable to well directed surgical measures on the thyroid. Articular manifestations of hypothyroidism are degenerative, are slowly progressive, and are readily lessened in severity by the administration of thyroid extract in adequate dosage."

Duncan (1934) believes also that there is an etiological relationship between thyrotoxicosis and non-specific arthritis and thinks that the trophic disturbances are induced by the hyperactive thyroid through the vegetative nervous system.

Personally, I am of the opinion that there is a distinct relationship between the thyrotoxic thyroid and non-specific chronic arthritis and rheumatism encountered in thyrotoxicosis. *I believe that these latter conditions are caused by hyperparathyroidism. The parathyroids are spurred to overfunction by the overactive thyroid: in other words, the thyroid activates the parathyroids.*

This view is based upon past experience. Indeed, in the past twenty-seven years of goiter surgery, I have had the opportunity to observe quite a few cases of chronic rheumatism and non-specific chronic arthritis in connection with thyrotoxicosis. Some were mild, some were severe. They all more or less subsided after thyroidectomy. The mild

cases responded rapidly, the more severe cases took longer time to disappear, sometimes several months, but nevertheless finally cleared up. I shall give a brief report of some of them.

The view that there is an etiological relationship between thyrotoxicosis and non-specific arthritis is also based upon the study of blood calcium in thyrotoxic cases, which I shall also report here.

Case 1. Thyrotoxic Non-specific Chronic Arthritis. Mrs. Martha H., aged 61 years, referred by Dr. J. H. Jackson, October 6, 1924.

Chief Complaint. Extreme lassitude, nervousness, rapid pulse.

Family History. Father and mother died in senility, two brothers died of "fevers." Daughter had goiter; otherwise negative.

Past History. Usual childhood diseases. Abdominal operation fifteen years ago. Influenza four years ago, followed by nervous breakdown. In bed seven weeks.

Past Illness. Patient noticed enlargement of neck six years ago. Has had rapid heart action for five years. In the past three months the heart has been more rapid and the patient was very nervous and complaining of extreme lassitude. These symptoms, she says, followed nervous strain following housecleaning. She has lost six pounds in weight.

Gastro-intestinal. Appetite fair, diarrhea six weeks ago.

Cardio-respiratory. Marked shortness of breath, palpitation, tachycardia, weakness.

Genito-urinary, negative.

Bones and joints, swollen, painful.

Obstetrical History. Two pregnancies — 1 living, 1 dead. Menopause thirteen years ago.

Nervous System. Sleeps fairly well. Very nervous. No headaches or dizziness. Complains of trouble in swallowing and pain in the neck radiating to the ears; profuse sweating.

Physical Examination. Faint staring look in the eyes. Teeth, upper and lower plates. Tonsils, small. Thyroid gland enlarged three or four times normal size, firm, nodular, non-vascular. Lungs, normal. Heart, regular; rate 120; enlarged moderately to the left. No murmurs. Abdomen shows median operation scar. Pelvic examination negative. Marked tremor of the hands. Patellar reflexes, active. Blood pressure, 172/80. Basal metabolism rate, plus 50.

Laboratory Findings. Blood count: erythrocytes, 3,960,000; hemoglobin, 85%; leucocytes, 6400; polymorphonuclears, 55%; small lymphocytes, 42%; large lymphocytes, 3%; Wassermann, negative. Blood sugar, 106.5 mg. per 100 cc. blood. Blood urea, 15.4 mg. per 100 cc. blood.

Urine: October 9, 1924. Yellow, slightly cloudy, acid; specific gravity 1.015; albumin and sugar negative, 1 plus epithelia, 2 plus leucocytes, no casts or bacteria.

October 11. Straw, cloudy, neutral, specific gravity, 1.022; one plus albumin, no sugar. occ. epithelia, many leucocytes, no casts or bacteria.

Operation. October 15, 1924. Ligation of right superior pole, as follows: Patient anesthetized in bed, lifted to car and draped in usual manner for thyroidectomy. Before operation started, her apex beat was 200 per minute. I was deemed wiser to ligate than to perform thyroidectomy. Therefore the right superior pole was ligated. Iodine catgut was used for ligatures and sutures. No drainage.

Course since ligation. December 22, 1924. On arrival home, November 1, the patient immediately seemed to become weak, more nervous, gradually passing into delirium and coma. She was in this condition about ten days, being very irrational. She recovered from this and remained in good condition until about December 1 of the same year, when she began to get extremely weak and required stimulants throughout one night. Has since felt better, although may feel good one day and bad the next.

The right hand and right shoulder became swollen, painful and she became much incapacitated. She states the symptoms had started while she was in the hospital previously, but did not mention anything about it.

Patient returned for thyroidectomy.

Physical Examination. Same as in October except as follows: Vaginal examination: cervix lacerated, firm, tender, granular; fundus not felt on account of tenderness.

Extremities. Right upper: extension of forearm, limited on account of pain in the elbow. Metacarpo-phalangeal joints Nos. 2, 3, 4, enlarged and painful. Both knees tender, not enlarged, but complete extension is not possible. Blood pressure, 192/98. Basal metabolism, plus 22.

Laboratory Findings. Numerous urinalyses showed the specific gravity varying from 1.006 to 1.019, with heavy traces of albumin and a moderate number of pus cells with occasional hyalin casts (December until April).

Progress in hospital previous to thyroidectomy was as follows:

January 19, 1925. Patient still has rapid heart action, nocturia.

January 20. Patient about the same. Sleeps poorly.

February 1. Knees and right hand improving. General condition same.

February 15. Has had six roentgen-ray treatments over the thyroid. Pulse slower. Not so nervous.

February 28. Little change in condition.

March 9. Has mild influenza. Râles at left base, posteriorly.

March 16. Still few râles.

March 20. Râles gone. Patient feeling better.

April 24. Few râles both on bases posteriorly.

April 26. Thyroidectomy, as follows *(operation took exactly eighteen minutes).* Low collar incision, division of the muscles in the median line. Ligation of both superior poles. Bilateral resection of the thyroid leaving enough thyroid tissue to equal one-third the size of a normal lobe on either side. Ligatures sutures, platysma, intradermic, no drainage, iodine catgut used for the upper poles.

The goiter was of the genuine diffuse and small nodular colloid type on both sides. It was about six times its normal size, rather vascular, soft and friable pyramidal process is practically absent. The portion of gland left behind was of the same diffuse granular colloid type. No thymus.

The patient's condition remained good throughout operation—cardiac action regular; pulse, good volume, 150, at end of operation and 132 when started. Respirations unimpaired and voice uninjured.

Pathological Findings. April 27, 1925. The one lobe measures 5.5 by 3.5 by 1 cm. The other lobe measures 4 by 3 by 0.8 cm.

Diagnosis. Nodular colloid goiter.

Postoperative Progress. Uninterrupted convalescence. Three months later, all muscle and joint pains had disappeared.

January 26, 1927. Communication from patient's daughter as follows: "Mother is very well" *and we are so happy — It is worth all those long months in the hospital.* "She is looking well and has gained about fifteen pounds!" Patient has remained well ever since.

Note. This thyrotoxic goiter case with nonspecific chronic arthritis relieved by thyroidectomy is typical of quite a few others observed in my past experience. It must be stated that at that time blood calcium determinations were not carried out.

Case No. 2. Mrs. S. A., aged thirty-four years; referred by Dr. Kefauver, May 29, 1929.

Chief Complaint. Shortness of breath, neuritis.

Family History. Father and mother living and well. One brother and one sister living and well. One sister died following operation for tuberculosis.

Past History. Usual childhood diseases. No serious illnesses or operations.

Past Illness. Has felt weak and has been losing weight for the last four or five years. In December, 1927, noted shortness of breath, enlargement of the neck and prominent eyes. Has gradually become worse, with marked nervousness, dyspnea, palpitation, tachycardia, profuse sweating, weakness and loss of 40 pounds weight. No menstruation for nine months, previous to which time this was normal. Six children; youngest three years. Has had what she terms "neuritis" in the legs for eighteen months or so.

Previous Treatment. Has taken many different kinds of medicine, along with medicine from an Indian medicine man. Has also had "pow-wow treatments."

Physical Examination. Shows an emaciated white woman, weighing 73 pounds. The tonsils are small. Teeth show several fillings, two decayed. The pupils react normally. There is marked staring look and marked exophthalmos with positive von Graefe, Moebius, Dalrymple, Kocher signs. Thyroid gland is enlarged about eight times normal size, diffuse, firm granular, with marked vascular signs, as follows: expansile, bloating from straining, enlargement of the arteries, thrill over the arteries, murmur over the arteries and murmur on the gland itself. Lungs, normal. Heart, regular; rate, 120. There are a systolic murmur at the apex and pulmonic areas, marked enlargement to the right and left. Abdomen shows small accumulation of fluid. Pelvic examination shows the cervix firm, granular; fundus in retroflexion; adnexa not felt. Skin, moist. Marked tremor of the hands. Patellar reflexes, active. Blood-pressure, 140/76. Metabolism, plus 45. Weight, 73 pounds. Complains much of stiffness and soreness in both knees. Examination is negative.

Patient did not respond to the preoperative treatment. After a few weeks she became homesick and was sent home for three months' rest and medication and returned to the hospital September 26, 1929. General condition about the same.

Three months ago patient had stiffness and soreness in both knees but no trouble with the arms. Now patient can straighten left leg and has no pain in left knee-joint but right knee in worse condition, being held in flexion at right angle and cannot be straightened out. The right knee-joint tender to pressure. In addition, in the past three weeks patient has

been having "neuritis" in both upper arms and both shoulder joints, so that she cannot raise her arms to arrange her hair. The elbow joints do not seem to be affected. Roentgen-ray shows generalized rarefaction of the bones.

Since May 29, 1929, patient has had four roentgen-ray treatments over the thyroid gland at about four week intervals.

Progress. During stay in the hospital, September 26, 1929, to July 24, 1930: pulse, 120 to 140. Heart dilated 3 cm. to the left. Patient very nervous. Rheumatism both knees, which are drawn up.

September 30, 1929. Roentgen-ray over the thyroid.

October 14. Little change in condition. Pulse rate, 120-140. Second Roentgen-ray over thyroid.

November, 1929. Several injections of non-specific protein, lactigen.

November 20. Condition about the same, including rheumatism.

December 23. Condition same.

January 5, 1930. Temperature still 100° F. in the afternoon. Pulse 140 to 160. Roentgen-ray treatment every two weeks.

January 25. Smears and cultures from gums and cervix.

January to April. Intensive vaccine treatment from cultures made from gums and cervix. Also intensive treatment for Vincent's organism.

February 8, 1930. Joints less tender.

March 9. General condition improving gradually. Resistance apparently has increased in the past month.

April 24. Condition improved.

May 15. Thrill and bruit still present over the thyroid. Gaining. Feels good. Knees in same condition. Less painful.

June 3. Still gaining weight. Eats well. Thrill and bruit still present over superior right thyroid.

June 4. Ligation right superior pole. The patient was anesthetized in bed and draped in the usual manner for a ligation. Her condition seems good and thyroidectomy is contemplated. However, on account of being a very poor surgical risk the lesser operation is decided upon and the right superior pole is ligated with two double silk ligatures. The superior communicans and a branch of the inner communicans were ligated and cut. The incision was closed in the usual manner, leaving a small rubber drain. Patient's condition remains good throughout operation.

July 10. Patient feels much better generally. Pulse, 100 to 120. Gained 20 pounds since ligation.

July 15. Ligation of left superior pole. Patient is anesthetized in bed and put on the table and draped in the usual manner for a thyroidectomy. However, her heart became quite rapid before the operation was started, being 160, and it was deemed wiser to do a ligation at this time and postpone the thyroidectomy until a later date. The left superior pole of the thyroid was therefore ligated with a double silk ligature. The incision was closed in the usual manner without drainage. Patient's condition remains unsatisfactory throughout operation. Pulse very rapid; rate, 180 to 190 per minute at end of operation from 160 when started. Respiration normal.

The patient was sent home for rest to return in two months for thyroidectomy.

December 1. Patient returned to the hospital after spending summer and fall at home. Has gained 13 pounds and is less nervous. The heart rate is slower. Temperature now ranges between 99° and 100° F. Both knees are markedly flexed and painful, especially in damp weather. (She has been taking iodine all summer).

Physical Examination. Eyes show less exophthalmos, positive von Graefe. Teeth, many carious with pyorrhea. Tonsils small. Neck shows ligation scars. Thyroid six to eight times normal size, firm, granular, marked bruit over both lobes. Lungs normal. Heart markedly enlarged to left, rate 120 to 140. Abdomen normal. Extremities, both knees painful to pressure and legs are in marked flexion. Any attempt to extend them is very painful. Hamstrings spastic.

December 25. Rheumatism in knees worse.

January 20, 1931. Pains in knees very severe. Knees very stiff. Heat-light treatments.

February 23. Three teeth extracted.

February 25. No pains in knees.

March 6. Sore throat. Râles at right base posteriorly. Influenza.

March 16. Pulse 180. Respiration 40. Slightly limited expansion of right chest. Many harsh râles, bronchial breathing, increased vocal fremitus over right middle and lower lobes. Slight cyanosis of fingers.

Diagnosis. Beginning lobar pneumonia of right middle and lower lobes.

March 17, 1931. Consolidation of right lower lobe posteriorly.

March 25. Vomiting (Hypodermoclysis).

March 26. Diarrhea, but no more vomiting.

March 27. Diarrhea checked. Keeping food down but eats little.

March 31. Jaundice. Bile in urine. Tenderness along right costal margin.

April 4. Still mild jaundice. Patient losing weight. Little cough. Eating and drinking fairly well.

April 13 to April 15. Iron citrate intravenously. Typed for blood transfusion.

April 16. Husband and son called for blood typing but patient suddenly ceased breathing before they arrived.

January 26, 1930. Culture shows: *gums,* Micrococcus catarrhalis, many Staphylococcus citreus, *cervix,* Gram-negative diplococcus.

January 31. Autogenous vaccine shows: *cervix,* 5 cc. Gram-negative diplococci, Gram-negative cocci; *gums,* 5 cc. Staphylococcus albus.

February 7. Smear from gums shows: few Borrelia Vincenti, few fusiform bacilli, few diplococci, few cocci.

March 30. Culture, occasional short chain streptococci, few Gram-positive cocci, few Gram-positive bacilli, 5 cc. vaccine.

January 21, 1931. Roentgen-ray of teeth reveals number of abscessed and devitalized teeth.

March 16. Sputum: few pus cells, many Gram-positive bacilli, moderate spirilla and moderate Gram-positive diplococci.

Autopsy Findings. Generalized diminution of calcium of the bony skeleton, especially lower extremities. Both knees flexed on thigh at right angles and could not be extended further although they could be easily flexed. No joint crepitus. Spontaneous fracture of the upper third of the right femur, probably sustained when moved in bed or on the autopsy table. Moderate pressure over both knee-joints elicited egg-shell crepitus in the patellae, upper end of tibiae and condyles of the femur. Bone extremely porous and soft, cutting very easily with the saw. The marrow grossly appeared to be entirely fat. Bone very spongy and could be crushed with the fingers. The marrow cavity much greater than normal and surrounded by a thin shell of bone. Bone also very thin and spongy in the region of the spontaneous fracture in the right femur. The bodies of two spinal vertebrae were also quite soft. Microscopically the bone marrow is a-

Laboratory Findings

Blood Counts	May 29, 1929	Sept. 27, 1929	Feb. 2, 1930	Dec. 4, 1930	Mar. 28, 1931	Apr. 13, 1931
Erythrocytes	4,200,000	3,600,000	3,550,000	4,550,000	2,400,000	1,700,000
Hemoglobin	80%	70%	70%	75%	50%	28%
Leukocytes	9,100	7,900	5,200	7,700	7,800	5,700
Neutrophiles	64%	68%	60%	49%	74%	68%
Sm. lymphocytes	34%	32%	36%	44%	26%	32%
Lg. lymphocytes	2%	——	2%	Achromia moderate		
Coagulation	3 mins.		Eosin. 1%	Eosin. 1% Monos. 6%		

April 16, 1931. Reticulocytes 0.02, platelets 510,000. Wassermann negative.

May 29, 1929. Blood sugar 85 mg. per 100 cc. Non-protein nitrogen, 26 mg. per 100 cc.

June 25. Blood culture negative. Widal negative. Undulant fever negative. Tularemia negative.

April 13, 1931. Cholesterol 120.

April 13. Blood sedimentation as follows: 0 minutes 100, fifteen minutes 87, thirty minutes 70, forty-five minutes 55, sixty minutes 44.

April 15. Feces examination negative.

Urine: May 28, 1929. Amber, cloudy; specific gravity 1.022; acid 20 mg., albumin no sugar, few granular casts, few leukocytes.

May 30. Same.

September 28. Negative.

February 5, 1930. Negative.

March 31, 1931. Negative, except positive bile.

Cervical Smear shows: moderate leukocytes, few Gram-negative bacilli, few Gram-negative diplococci, occ. Gram-positive diplococci.

Gum Smear shows: few leukocytes, many Borrelia, few fusiform, Vincent's, moderate bacilli, moderate diplococci.

plastic, showing almost complete absence of bone-forming tissue in the softest areas. Figs. 1-4.

Samples of blood and urine were obtained from the body for calcium estimation, as follows: blood serum calcium, 8.8 mg. per 100 cc.; urinary calcium 4.8 mg. in 25 cc. Estimating the twenty-four output at 1250 cc. daily, the calcium output would be 240 mg. (Normal urinary calcium is 100 to 400 mg. per dien).

Dissection of the neck reveals only two small parathyroids, normal in size. No other parathyroid tissue was found, despite searching dissection. Thyroid is of the diffuse parenchymatous type.

Conclusions. The skeletal findings (Figs. 1, 2, 3, 4) are very typical of the ones seen in generalized osteitis fibrosa of von Recklinghausen, which we know are produced by hyperparathyroidism, yet postmortem did not reveal any parathyroid tumor, nor parathyroid hyperplasia. It is still possible that ectopic parathyroid tissue, or ectopic parathyroid adenoma might have been missed. But we know that parathyroid adenoma or that parathyroid hyperplasia are not absolutely necessary requirements for the production of generalized osteitis fibrosa. Here we regard thyrotoxicosis as

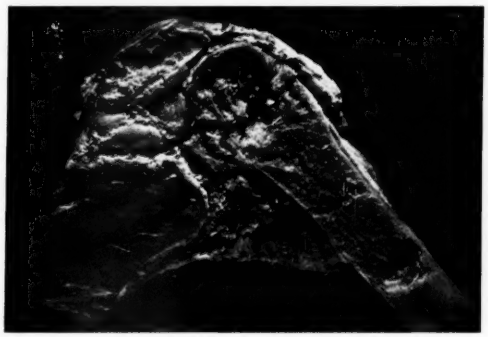

Fig. 1. Advanced stage of decalcification of knee joint in author's case of thyrotoxicosis. Appearance same as observed in generalized osteitis fibrosa.

Fig. 2. Same case as preceding actual formation of a bone cyst.

Fig. 3. Same as preceding case. Site of spontaneous fracture.

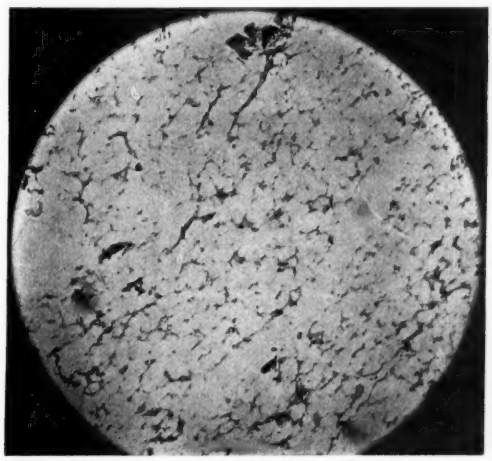

Fig. 4. Same case. Microscopic appearance of bone morrow showing aplastic characteristics; complete absence of bone-forming tissue. Low power magnification.

stimulating the parathyroids to hyperfunction, hence decalcification.

What interpretation should be given to the normal terminal blood calcium picture in this case? Terminal normal blood calcium is ordinarily found in terminal phases. Indeed, it is well known that in experimental hyperparathyroidism when once the acute state is passed, and the condition becomes chronic, calcium elimination which was marked during the acute stage, gradually subsides and finally assumes a more or less normal level during the chronic stage, although decalcification still goes on. The same is observed in human pathology. Therefore, a normal blood calcium does not necessarily eliminate the diagnosis of hyperthyroidism.

Case No. 3. Mr. D. M., age twenty-four years; referred by Dr. Cherrington, December 30, 1930.

Chief Complaint. Shortness of breath, goiter.

Family History. Mother had exophthalmic goiter, ligated about five years ago, but later died without operation. One brother living and well. One maternal aunt died following goiter operation, two maternal aunts and one maternal uncle have goiter.

Past History. Usual childhood diseases. Pneumonia at one year. Diphtheria at ten years. Scarlet fever at twelve years. Influenza, 1918.

Past Illness. Four years ago patient complained of weakness, shortness of breath, rapid heart, loss of weight. He was then operated upon, first ligation of right side, and a month later, left lobectomy. This was done elsewhere. Gained strength and weight following operation, although he still had some dyspnea, but was able to work for a year and then to go to school for a year. Then worked for one and a half years for a baking company, but for the past eight months has been unable to work on account of gradually increasing weakness, shortness of breath and nervousness. Four months ago patient had diarrhea, 4 to 6 bowel movements a day, no blood, *together* with swelling of feet, legs and body to the umbilicus. This lasted for about a month. In September 1930, patient was given Lugol's solution and digitalis at another hospital, with slight improvement. He was unable to walk at that time and has been in bed constantly since.

Physical Examination. Patient very emaciated with orthopnea, marked edema of both legs, left forearm. Pupils react normally. There is marked staring look and positive von Graefe, Moebius and Dalrymple signs. There is marked exophthalmos, the exophthalmometer readings being as follows: right 21mm., left 22 mm. at 102 on the scale. Teeth in poor condition, considerable pyorrhea and many fillings. Tonsils small, cryptic. The thyroid gland firm, granular; right lobe 6 times normal; left not palpable. There are a marked bruit and distention of the veins in the neck on the right side. Lungs show râles in the left base posteriorly, dullness and decreased tactile fremitus below the seventh interspace posteriorly, right base. Heart absolutely irregular; apex rate 180 to 200 and radial pulse 100 to 120. There is marked dilatation of the heart to the right and to the left. Abdomen shows marked ascites. There is an accumulation of fluid in the scrotum. Rectal examination negative. Skin moist. Marked tremor. Blood pressure 135/72. Basal metabolism rate plus 44. Tremor. Patellar reflexes, active.

Laboratory Findings. December 3, 1930. Blood count: erythrocytes 3,950,000, hemoglobin 70%, leucocytes 20,650, polys. 91% small lymphocytes 9%, Wassermann negative.

Urine: *December 10.* Amber, clear, specific gravity 1.017, acid, no albumin sugar or casts.

December 13. Amber, clear, specific gravity 1.021, acid, no albumin sugar or casts, 400 cc. of twenty-four specimen.

Blood counts: *May 1, 1931.* Erythrocytes 5,600,000, leucocytes 7,400, hemoglobin 80%, polys. 80%, lymphocytes 20%. Blood cholesterol 100.

May 8. Blood calcium 8.8.

May 11. Erythrocytes 3,700,000, leucocytes 4,000, hemoglobin 70%, polys. 82%, lymphocytes 18%. Icterus index 75.

Urine: *April 7, 1931.* Acid, specific gravity 1.018, no albumin or sugar, no casts.

May 11. Acid, specific gravity 1.015, no sugar, 20 mg. albumin, two plus bile, 1 plus epithelium, no casts.

Total nitrogen 7 grams in 800 cc. urine.

Progress. The patient remained in the hospital from December 2, 1930 until his death, May 13, 1931. He had severe attacks of diarrhea off and on during this time. It was necessary to tap his chest several times to relieve the dyspnea.

Cultures of the fluid from the pleural cavity showed no growth except once when it showed Staphylococcus aureus.

Four roentgen ray treatments given over

the thyroid gland during his stay in the hospital.

Pain swelling, limitation of motion in both knees, with marked contractures of the hamstring muscles, especially marked the two weeks before death on May 13, 1931.

Blood calcium was 8.8 mg. per 100 cc. May 8, 1931.

Roentgen-ray pictures of both knees revealed all bony structures to be normal with no evidence of bony ankylosis except an unquestionable decalcification of the bones, not only of the knees but of the whole skeleton.

Patient died before any thyroid surgery could be safely undertaken. No postmortem.

Conclusions. We regard the painful joints, the skeletal decalcification as a functional hyperparathyroidism induced by thyrotoxicosis. Note that this patient had severe diarrhea and vomiting. Note, too, that the blood calcium was normal. This, however, does not necessarily exclude hyperparathyroidism, as calcium losses may have taken place through the numerous diarrheic stools. Note also that the calcium determination was made at the terminal stage of the disease.

Case 4. Mrs. O. L., aged 49 years; referred by Dr. Clemson, June 17, 1931.

Chief Complaint. Nervousness.

Past History. No serious illnesses or operations. About six months ago noted some nervousness and palpitation. Six weeks ago fell and hurt back of neck Tonsillitis a few weeks ago, and has lost 20 to 30 pounds in weight since; has had no palpitation.

Gastro-intestinal. Appetite fair; occasional gas.

Cardio-respiratory. Shortness of breath, palpitation, tachycardia.

Genito-urinary. Occasional nocturia.

Nervous System. Very nervous and depressed — thinks she cannot get well. Occasional frontal headache and some dizziness. Sleeps fairly well.

Obstetrical History. Two pregnancies, both living, aged twenty-three and eleven years, respectively. Menstruation, normal.

Physical Examination. Pupils react normally. Staring look. von Graefe, Moebius and Dalrymple signs positive. Tonsils, cryptic. Teeth show several fillings. Thyroid enlarged four times normal size, firm to hard in consistency. Surface, granular. Mobility very reduced. Vascular signs present, including transmitted pulsation, bloating from straining, enlargement of the arteries, thrill on arteries, murmur on arteries and on the gland itself, venous pulse, enlarged veins.

Breasts, normal. Lungs, normal. Heart, regular, strong; rate, 132; marked enlarged to the left. There is a systolic murmur at the apex and base and systolic impulse at the second right and left interspaces. Abdomen, negative. Vaginal: perineum relaxed, 1+; cervix, firm and granular; fundus enlarged and in retroflexion; adnexae, not felt. Skin, moist. Tremor, present. Patellar reflexes, active. Blood pressure, 140/70. Basal metabolism, June 18, 1931, + 41; June 29, + 19; September 4, + 12. Weight ranges from 117 to 121 pounds.

June 24, 1931. Urine: acid, specific gravity, 1.030; albumin and sugar negative; Microscopic: pus cells, 1+; no casts.

Total urinary calcium, 390 mg. in 1000 cc. urine.

June 18. Blood calcium, 11.8 mg. per 100 cc. Quantity insufficient for blood phosphorus.

June 18. Blood count: ery., 4,600,000; hemoglobin, 80%; leucocytes, 5000; polys., 64%; lymph., 35%; mono., 1% Coagulation time, two and a half minutes. Wassermann, negative.

July 6. Erythrocytes, 5,000,000; hb., 80%; leucocytes, 4100; polys., 59%; lymphocytes, 28%; mononuclears, 3%.

October 6. Erythrocytes, 3,900,000; hb., 75%; leucocytes, 7900; polys., 63%; eosinophiles, 1%; lymphocytes, 34%; mononuclears, 2%.

July 31. Urine: *acid; specific gravity,* 1.025; 20 mg. albumin, no sugar. Microscopic: leucocytes, 1 +; no casts.

Progress while in Hospital. Marked depression and mental aberration for two months, along with pains, stiffness and swelling of the various joints.

October 1, 1931. Attack of acute tonsillitis with exudate on tonsils. Still has definite disturbance of joints.

September 8, 1931. Roentgen-ray picture of the chest reveals rather marked degree of peribronchial thickening in connection with the vertebral and first and second interspace trunks, bilateral. The hilum shadow, bilateral, is rather markedly intensified. A moderate degree of peribronchial thickening is noted in the bases, but the bases are considerably more clear than the upper lobes. The heart and aorta are normal in size and position. The peribronchial thickening in the upper lobes represents, undoubtedly, a tuberculous process. The evidence of the present activity must be explained from clinical evidence.

September 24, 1931. Roentgen-ray picture of the right shoulder reveals a moderate de-

gree of rarefaction of the head and upper portion of the humerus. There is also a number of rarefied areas in connection with the body of the scapula. Roentgen ray picture of the right hand reveals areas of rarefaction involving the heads of all the metacarpal bones, and heads and basal portions of all the phalanges.

October 26. Thyroidectomy was done as follows: Low collar incision, division of muscles in the median line. Ligation of both superior poles, bilateral resection of the thyroid leaving enough thyroid tissue on either side to equal a half of a normal lobe. Ligatures, sutures, platysma intradermic, iodine catgut throughout, saline, one small rubber drain beneath the skin flap.

The gland is of the diffuse parenchymatous and colloid type, mixed, involving both lobes and the isthmus. The gland is between four and six times normal size, is deeply situated, bound down firmly by adhesions, is friable and vascular. The portion of the gland left behind is of the same diffuse parenchymatous and colloid type, mixed. Exploration for thymus, negative. There is no pyramidal process.

Patient's condition remains good throughout the operation; cardiac action regular; pulse, good volume, 140 at end of operation, 96 when started. Respirations normal; voice uninjured.

Pathological Findings. October 26, 1931. Preoperative diagnosis: thyrotoxic, diffuse, parenchymatous goiter.

Specimen consists of the thyroid gland; both lobes measure 5½ x 2½ x 2 cm. They are regular on their surface and on section there is mottling suggesting a marked hyperplasia.

Microscopic sections show a small amount of hyperplasia and round cell infiltration.

Diagnosis. Diffuse parenchymatous goiter with colloid.

November 12, 1931. Communication from Dr. Clemson states that since patient returned home five days previous she has been eating and sleeping well, rapidly gaining strength and use of the hands and arms. Pulse, 84. Patient bright and cheerful.

November 16. Dr. Ramsey suggests that she receive calcium lactate, 10 grains three times a day.

July 15, 1932. Patient in for a check up. Has gained forty-eight pounds. Pulse, 70. No complaint except some pain in the legs and puffiness of the eye lids. Basal metabolism, minus 12. Suggested treatment: calcium lactate, 5 grains three times a day; thyroid extract, one-fifth grain a day.

June 14, 1935. Complains of dizziness. Physical examination at this time shows the upper lids puffy. Teeth, partial plate. Neck, negative. Lungs, normal. Heart rate 80, normal. Abdomen, negative. Cervix, normal; fundus in retroflexion; adnexae not felt. Rectal, negative. Blood pressure, 160/80. Basal metabolism rate, minus 6. Treatment: ¼ grain thyroid extract daily. No complaint in joints, except soreness of the feet.

Conclusions. We are warranted in regarding the bony decalcification and the painful joints as a thyrotoxic non-specific arthritis which disappeared after thyroidectomy. Note also the moderately increased calcium elimination, and the bony rarefaction.

Case 5. Mr. O. L., aged 61 years. Patient referred by Dr. J. M. Thomas, February 26, 1931.

Diagnosis. Toxic goiter and heart trouble.

Past Illness. Began seven months previously when patient noted he was losing weight and that his heart was irregular. A doctor told him he had heart trouble and gave him digitalis. Sometime later another doctor saw him and took an electrocardiogram; told him that he had heart failure and advised continuance of digitalis. Patient continued to get worse until December 1, and Dr. Thomas diagnosed the case as toxic goiter and gave him 10 drops of Lugol's solution three times a day. He improved rapidly until three weeks ago when he began to get worse. Lugol's solution was stopped and he was given digitalis. He has been unable to eat for the last ten days and yesterday began to vomit; no diarrhea. Patient says neck has enlarged considerably in the last six weeks. Weight seven months ago was 170 pounds. Before starting Lugol's solution, 115 pounds; three weeks ago, 150 pounds. Now weighs 111 pounds. Other symptoms at this time are loss of appetite, constipation, nervousness, sleeplessness, palpitation, tachycardia, shortness of breath, dysphagia, and choking spells, with general muscular weakness and profuse sweating. Complains of marked pain in the left shoulder.

Family History. Father died at 80 years; mother at 86 years. One brother died of diabetes; one brother died of tuberculosis; one sister, cause unknown. Three brothers and two sisters living and well.

Past History. Rheumatism in legs seven

years ago. In bed seven weeks. At present time complains of pain in the left shoulder and left arm. Sinus treatments one year ago.

Physical Examination. Tongue dry and red; acetone breath. Tonsils, small. Teeth all in poor condition. Eyes, staring look; positive von Graefe, Moebius and Dalrymple signs. Thyroid gland enlarged six times normal size, firm, granular and nodular; murmur over the right superior thyroid artery. Lungs, normal. Heart irregular in force and rhythm, rate 105 at the apex and 90 at the wrist. Heart markedly enlarged to the right and left. Abdomen, normal. Skin, moist. Marked tremor of the hands. Patellar reflexes, obtained only on reinforcement. Left shoulder somewhat atrophic, otherwise, negative. Blood pressure, 130/48. Weight, 111 pounds. Basal metabolism rate: Feb. 27, 1931, plus 55; March 14, plus 49; March 19, plus 56; March 26, plus 53; April 2, plus 50; April 15, plus 46; April 27, plus 42. Blood count as follows: erythrocytes, 4,500,000; hemoglobin, 80%; leucocytes, 6,600; polys., 64%; lymphocytes, 34%; mononuclears, 2%; Wassermann, negative. Urine, negative.

Patient entered the hospital February 26, 1931, and was sent home May 14, 1931.

May 9, 1931. Blood calcium, 11.2 mg. per 100 cc.

May 30. Urinary calcium, 425 mg. per 100 cc. Total twenty-four hour quantity, 950 cc.

May 30. Metabolism, plus 61. Blood pressure, 128/54. Weight, 105 pounds.

July 7. Metabolism, plus 59.

July 17. Metabolism, plus 43.

July 7. Urine, negative.

Roentgen-ray picture of the left shoulder (May 29, 1931) with picture of the right taken for comparison reveal apparently a moderate degree of osteoporosis in the left shoulder which is not apparent in the right. The pictures of the two shoulders are of somewhat different density, but in spite of this fact I believe that the above conclusions are justified.

July 20, 1931. Thyroidectomy as follows: Low collar incision, division of the muscles in the median line, ligation of both superior poles, bilateral resection of the thyroid leaving enough thyroid tissue on either side to equal one-half of a normal lobe. Ligatures, sutures, incision left open packed with gauze impregnated with acriflavin.

The gland is of the nodular colloid type involving both lobes and the isthmus, about eight times normal size, moderately friable and moderately vascular, presents very few adhesions. The portion of the gland left behind consists of the posterior capsule with plenty of diffuse colloid tissue attached. There is no thymus, no pyramidal process. Both lower poles extend slightly beneath the sternum, the windpipe is compressed somewhat antero-posteriorly. Because of the patient's heart condition and high metabolism the incision is left open and packed with acriflavin gauze.

Pathological Findings. Preoperative diagnosis: thyrotoxic diffuse parenchymatous and colloid goiter.

Specimen consists of a diffusely enlarged thyroid gland. The right lobe measures 5 x 4 x 3 cm. and the left lobe is slightly smaller. There are no nodules and the cut surface shows the diffuse pallor of a hyperplastic gland. However, there is abundant colloid present.

Diagnosis. Diffuse hyperplasia with abundant colloid.

Progress Since Operation. May 5, 1932, patient returned for a check up, having gained 30 pounds in weight. Complained only of occasional palpitation and occasional nervous sensations. Exophthalmos and von Graefe sign present. Pulse, 90. Heart somewhat dilated. No shoulder complaint. Basal metabolism, — 5. Advised two drops of Lugol's solution daily because of eye condition.

May 6. Roentgen-ray of shoulder showed "shoulders approximately the same on both sides. No real evidence of rarefaction."

May 9. Blood calcium, 10.5 mg. per 100 cc. Total urinary calcium, 211 mg. Twenty-four hour urine, 1320 cc.

January 4, 1935. Patient feels fine. Has no aching and is able to go hunting without shortness of breath. Neck, normal. Pulse, 70 to 80. Blood pressure, 134/90. Abdomen, adipose. Weight, 145½ pounds. Urine, negative.

Took Lugol's solution for only one month in 1932.

Conclusions. This case also represents a combination of thyrotoxicosis, non specific arthritis, bony rarefaction and moderate calcium elimination.

Calcium Determinations in Thyrotoxicosis. In order to determine whether in

hyperthyroidism the calcium elimination was exaggerated or not, the following determinations were made:

Patient	B. M. R.	Urine (per 24 hr. amt.) 24 hr. amt. cc.	Ca. mg.	Phos. gm.	Blood (per 100 cc.) Ca. mg.	Phos. mg.
L. O. L.	+ 61	1950	425		11.2	
L. C.	+ 18	450	180	0.22	10.4	2.15
M. V.	+ 54	3600	410	1.5	11.8	4.1
T. P.	+ 75	2000	90	0.86	11.8	3.2
H. A.	+ 37	750	350		13.0	
L. H.	+ 14	1000	113		10.8	
E. W.					10.8	
G. G.	+ 40	1100	115		10.7	
V. S.					12.2	
G. B.	+ 8				10.8	
M. W.	+ 51				12.2	
O. L.	+ 41	950	192	1.52	11.8	
P. F.	+ 59	700	161			
C. A.	+ 68	550	134	0.3	9.2	2.9
A. W.	+ 30	1525	122	9.2		
D. M.	+ 44				8.8	
E. G.	+ 32	2300	414	10.2		
H. S.	+ 29	2050	615	9.8		
S. A. postmortem	+ 52	25* 1250	4.8 240		8.8	
E. E.	+ 74	1500	140	1.11	11.2	4.0
				postoperative tetany	7.0	

*Single specimen.

Normal blood calcium, 9-11 mg.; Normal blood phosphorus, 3.7-5 mg.; Normal urinary calcium, 100-300 mg.; Normal urinary phosphorus, 250 mg.

Additional Calcium Cases

Date	Name	B. M. R.	Urine Amt. in 24 hrs.	Urine Calcium Per 100 cc.	Urine Calcium Total Ca.	Blood Ca.
1/ 9/32	H. S.	+ 29	2050	30	615	9.8
1/25/32	N. C.	+ 49	1150	28	322	12.0
1/ 9/32	E. C.	+ 6	760	32	243	9.5
1/ 9/32	E. T.	+ 5	2330	14	326	10.0
1/ 9/32	E. G.	+ 32	2300	18	414	10.2
4/ 1/32	B. T.	+ 37	1180	58	684	8.5
1/17/32	G. L.	+ 7				10.0
12/30/31	J. K.	+ 1				11.5
2/ 6/32	C. L.	+ 57				8.5
4/ 3/32	M. H.	+ 10				8.0
12/ 9/31	A. F.	— 10				9.0
4/30/32	J. B. M.	+ 5				12.0
1/14/32	F. P.	+ 12				9.5
					Blood phos. 2/16/32	4 mg.
11/ /35	W. L. B.	+ 61	820		475.5	
11/ /35	E. G.	+ 29	1270		320	15.0
12/ /35	C. T. L.	+ 28	1800		278	12.0
12/ /35	W. D. S.	+ 15	1820		58.2	10.5

COMMENT

These series were taken consecutively at different periods without discrimination. One observes that:

1. Hypercalcemia is present in 40.6 per cent of the cases in which calcium determinations were made.

2. Hypophosphatemia is present in 40% of the cases studied. The number of the cases studied is not great enough to warrant definite conclusions.

3. The urine calcium was increased in 48% of the cases studied.

4. The urine phosphorus was below normal in 64.4% and much above the normal in 33.3 per cent of the cases investigated.

From these figures one seems to be warranted in claiming that a definitely increased calcium elimination is present in thyrotoxic goiter, be it of the parenchymatous or of the nodular type. The highest hypercalcemia was observed in a secondary thyrotoxic nodular goiter; the blood calcium was 15 mg. per 100 cc. Furthermore, the ratio between blood calcium and urine calcium is much the same as the one observed in hyperparathyroidism.

Clinical Aspect. It is known that endocrine disturbances may often cause rheumatic pains, chronic non-specific arthritis. This has been observed in conjunction with utero-ovarian disturbances, more than once, but it has been especially noticed with thyroid malfunctions in hypo- and hyperthyroidism, and in the past was called *thyroid rheumatism.*

Chronic rheumatism and chronic non-specific arthritis associated with hypothyroidism have been known to respond to thyroid medication, thus showing their interrelation.

From the cases I have reported and from those I have observed, the following description might give a fairly good clinical picture of the condition when associated with hyperthyroidism.

In hyperthyroidism painful muscular and joint complaints are of frequent occurrence. The reason more attention is not paid to them is that they are ordinarily of the mild type, and are generally overshadowed by the thyrotoxic syndrome; no specific etiological reason is thought of.

The severe forms of muscular and joint complaints are rather uncommon. In severe conditions the pain is marked, limitation of motion increases more and more, atrophy of the muscles involved ensues. The ordinary medical means fail to relieve the patient. The more severe and the more prolonged the thyrotoxicosis is, the more intense are the symptoms of non-specific arthritis.

In advanced cases patients complain of an intense muscular hypotonus; not only can they not stand on their feet but they cannot even sit; they remain confined to prone positions.

If arthritis involves the knee, flexion of the leg takes place more and more, and if allowed to persist the flexion of the leg over the thigh becomes complete. Pain on touch becomes acute. This is well illustrated by Cases 2 and 3, which I have reported.

If the arthritis involves any other joint, the picture will be similar. The ultimate result is fixation, so as to put the joint at rest. If not treated by thyroidectomy it leads to permanent atrophic polyarthritis with characteristic contractures.

Spontaneous fractures are apt to occur.

Clinically, the syndrome is the same as observed in experimental hyperparathyroidism with parathormone.

Much as in experimental hyperthyroidism, patients lose their appetite, become nauseated, and have frequent vomiting and diarrhea.

Radiography at first is negative. However, in later and advanced stages, generalized decalcification of the skeleton is obvious.

SUMMARY AND CONCLUSIONS

It cannot be denied that the similarity of the clinical aspects of the roentgen-ray and autopsy findings in the clinical cases which I have reported strikingly resemble the findings seen in generalized osteitis fibrosa. *As the latter disease is produced by hyperparathyroidism it is logical to conclude that in the reported cases hyperparathyroidism has also been present.*

One might object that in Case 2 there must have been present a parathyroid adenoma. We have seen that search for

this at autopsy was negative. In fact, only two parathyroids were found, and these were apparently normal. It is still within the range of possibility, however, that a parathyroid adenoma, or other aberrant parathyroids might have been missed; the search was not as complete as it would have been today. At any rate, in the face of only these two normal parathyroids, one finds himself in an awkward position to explain hyperparathyroidism, although the findings observed, namely, generalized skeletal decalcification, can but point towards that explanation.

Generally speaking, in view of the fact that blood calcium excretion is found so frequently increased in thyrotoxicosis, and in view of the fact that calcium metabolism is under parathyroid control, increased calcium elimination and generalized decalcification of bones as observed in thyrotoxicosis can mean but one thing, namely, *increased parathyroid function.* We know from Aub's et al, research work that increased basal metabolism is not the cause of the increased calcium excretion. Consequently, there remains only the hyperthyroid condition as the possible activator of the parathyroids.

We are therefore led to conclude that in hyperthyroidism the thyroid activates the parathyroids. This conclusion coincides with the general opinion that the thyroid and parathyroids have a synergic action; they activate each other reciprocally.

At any rate one thing is sure: if *thyroidectomy is performed,* pain disappears, contractures regress, blood calcium returns to normal and recalcification of the skeleton takes place.

In consequence, chronic rheumatism and non-specific arthritis in connection with thyrotoxicosis are due to *hyperparathyroidism induced by thyrotoxicosis.*

RÉSUMÉ

L' auteur présente une revue de la littérature sur ce sujet. Il en résulte de cette étude que d'une facon générale l'on peut dire que dans les états hyperthyroïdiens, le calcium et les phosphates sont éliminés en plus grande quantité que dans les états normaux. L' élevation du métabolism basal ne eamble pas devoir être responsable pour cette elimination exagérée de calcium et phosphates puisque cette augmentation n'éxiste pas dans des conditions autres que les états hyperthyroïdiens quoique le métabolism de base puisse être très élevé comme, par example, dans des endocardites bactériennes, dans la leucémie lymphatique. Si l'on est plus ou moins d' accord sur ce sujet, il en va tout autrement en ce qui concerne le mécanism qui conduit à cette élimination exagérée de calcium. Ici l'accord n'est point du tout parfait. L'auteur est de l'avis que les états hyperthyroïdiens poussent les parathyroïdes à l'hyperfunction.

Pour démontrer son point de vue, l'auteur cite plusieurs cas d'arthrites thyrotoxiques survenant au cours d' un accès d' hyperthyroïdie. L'étude de l'excretion calcique montre que celle-ci est augmentée d'une facon incontestable.

L' étude roentgenologique de ces arthrites montre qu'il se produit une décalcification osseuse manifeste. La thyroïdectomie guérit l'arthrite et raméne l'élimination calcique à son taux normal.

Si l'hyperthyroïdie persiste pendant un temps plus ou moins prolongé, la decalcification peut prendre des proportions alarmantes, L' auteur cite le cas d'une malade hyperthyroïdienne avec arthrites et contractures multiples d'origine thyrotoxique chez laquella une fracture spontanée du femur apparut. L' autopsie démontra que la décalcification du squellette était complète et ressemblait en tout point à la décalcification osseuse que l'on observe dans la maladie de von Recklinghausen, mais sans la présence d'un adénome parathyroïdien; les parathyroïdes n'étaient pas même hypertrophiées. A côté de l'ostéite fibreuse

généralisée, il y avait aussi de petite cavités cystiques osseuses.

L' auteur fit l'étude de l'élimination calcique dans le sang et dans l'urine de 37 hyperthyroïdiens. Dans 40% des cas, le taux calcique du sang était augmenté et dans 48% des cas le calcium urinaire était bien au dessus de la normale.

Après avoir décrit l'aspect clinique des arthrites thyrotoxiques et démontré leur ressemblance frappante avec l'ostéite fibreuse généralisée de von Recklinghausen qui, elle, est produite par l'hyperfunction des parathyroïdes, l'auteur conclut que les arthrites thyrotoxiques avec leur décalcification plus ou moins marquée sont dues à de l'hyperparathyroïdism causé par l' hyperthyroïdism, ceci conduit l'auteur à déclarer que, physiologiquement, la thyroïde excite les parathyroïdes.

RIASSUNTO

L' autore presenta una rivista della letteratura. Da questo studio si puó concludere in via generale, che nei stati ipertiroidei, il calcio ed il fosforo sono eliminati in quantità superiori alla norma. Non sembra che l'aumentato metabolismo basale sia la causa diretta dell' esagerata eliminazione di calcio e fosforo, perchè tale aumento non esiste che nei casi di ipertiroidismo, mentre non è presente in altre malattie con metabolismo elevato come l' endocardite batterica, la leucemia linfatica. Vi è quindi un certo accordo sul soggetto, ma non sul meccanismo che conduce a tale esagerata eliminazione. L'autore ritiene che gli stati ipertiroidei predospongono le paratiroidi all' iperfunzione.

Per dimonstrare il suo punto di vista, l'autore cita diversi casi di artrite associati ad accessi ipertiroidei. Lo studio dell' eliminazione calcica dimostra un incontestabile aumento. Lo studio roentgenografico dimostra una manifesta decalicficazione ossea. Le tiroidectomia ha portato allo guarigione dell' artrite e ridotta la eliminazione del calcio. Se l'ipertiroidismo persiste per un periodo prolungato la decalcificazione assume proporzioni allarmanti. L'autore cita un caso nel quale l'artrite di origine tiroidotossica fu complicato da frattura spontanea del femore. All' autopsia si è constatata un tipo di decalcificazione somiglianta a quella associata al morbo di von Recklinghausen, ma senza la presenza di adenoma della paratiroidi; le paratiroidi non erano ipertrofiche. All' osteite fibrosa erano auche associata piccoli cavita, cistiche.

L'autore ha studiato l'eliminazione calcica nel sangue ed orina di 37% ipertiroidei. In 40% dei casi il tasso calcico del sangue era aumentato ed in 48% dei casi il calcio orinario era ben al disopea del normale.

Dopo di aver descritto l'aspetto clinico della artrite tirotossiche e dimonstrato la somiglianza netta con l'osteite fibrosa generalizzata von Recklinghausen prodotta dall' iperparatiroidismo, l'autore conclude che le artrite tirotossiche con decalcificazione più o meno marcata sono dovute a iperparatiroidismo causato dal ipertiroidismo, e questo conduce l'autore a dichiarare che, fisiologicamente, la tiroide eccita la funzione delle paratiroidi.

SUMARIO Y CONCLUCIONES

No puede ser negado que la similaridad del aspecto clínico de rayos-roentgen y lo encontrado en las autopsias en los casos clínicos los cuales yo he reportado extraordinaria semejanza á lo encontrado en osteitis fibrosa. Como esta ultima enfermedad es producida por hiperparatiroidismo es lógico llegar a la conclución que en los casos reportados hiperparatiroidismo ha estado tambien presente.

Uno puede objetar que en el Caso 2 pudo haber estado presente un adenoma paratiroideo. Nosotros hemos visto que la busca de éste en la autopsio resulto negatíva. En verdad solamente dos paratiroides fueron encontradas, y éstas fueron completamente normal. Aun está

dentro del radio de posibilidad, que un adenoma paratiroideo, o otros paratiroides aberrantes pudieran haber sido omitidas; la busca no fuè tan completa como ésta hubiera sido hecha hoy. De ninguna manera solamente al frente de éstas dos paratiroides, uno se encuentra á sí mismo en una posición difícil para explicar hiperparatiroidismo, aunque el exámen muestra en nuestras observaciones, principalmente, decalcificación generalizada del esqueleto, puede mas que guiarnos hacia esa explicación.

Generalmente hablando, en vista de la verdad que la excreción de calcio en la sangre se encuentra tan frecuentemente aumentada en tirotoxicosis, y en vista de la verdad que el metabolismo del calcio está bajo el control de las paratiroides, aumento de la eliminación del calcio y la decalcificación generalizada de los huesos como observada en tirotoxicosis puede significar una cosa solamente, aumento de la función paratiroidea. Nosotros sabemos por los trabajos de investigación de Aub et al, que el metabolismo basal no es la causa del aumento del de la excreción del calcio. Consecuentemente, ahi solamente queda la condición hipertiroidea como activador posible de las paratiroides.

Nosotros estamos por lo tanto inclinado a la conclución que en hipertiroidismo el tiroide actíva las paratiroides. Ésta conclucion coincide con la opinion general que el tiroide y paratiroides tienen una accion sinergica; ellas se activan la una a la otra reciprocamente.

Sea como fuera, una cosa es segura; si tiroidectomia es practicada, dolor desaparece, contracturas desaparecen, el calcio sanguíneo vuelve a la normal y recalcificación del esqueleto toma lugar.

En consecuencia, reumatismo crónico y artritis non-especifica en conección con tirotoxicosis son debidas á hiperparatiroidismo inducido por tirotoxicosis.

ZUSAMMENFASSUNG

Es kann nicht geleugnet werden, dass die klinischen Bilder, die Röntgenbefunde, und die Obduktionsergebnisse in den vom Autor berichteten Fällen überraschend den Befunden ähneln, wie man sie in generalisierter Ostitis fibrosa antrifft. Da der letzteren Erkrankung eine Ueberfunktion der Epithelkörperchen zugrunde liegt, ist es nur eine logische Folgerung, in den vom Autor geschilderten Fällen das Vorliegen einer Nebenschilddrüsenüberfunktion anzunehmen.

Man könnte einwenden, dass es sich in Fall 2 um ein Adenom der Epithelkörperchen gehandelt haben muss. Die Suche danach bei der Obduktion verlief negativ. Es wurden nur 2 Epithelkörperchen gefunden, die beide offensichtlich normal waren. Es bleibt natürlich die Möglichkeit offen, dass ein Nebenschilddrüsenadenom oder etwaige verlagerte Epithelkörperchen übersehen worden sein mögen. Die Suche danach war jedenfalls nicht so gründlich wie sie es heutzutage sein würde. Auf jeden Fall findet man sich angesichts des Befundes von 2 normalen Epithelkörperchen in der schwierigen Lage, von Nebenschilddrüsenüberfunktion sprechen zu können, wenn auch die erhaltenen Untersuchungsergebnisse, namentlich die generalisierte Kalkarmut des Skelets deutlich zur Annahme einer solchen Erklärung hindrängen.

Allgemein gesprochen kann, im Hinblick auf die Tatsache, dass der Blutkalkspiegel so häufig in Thyreotoxikosen erhöht ist und angesichts der Tatsache, dass der Kalkstoffwechsel unter der Kontrolle der Nebenschiddrüsen steht, eine gesteigerte Kalkausscheidung und eine generalisierte Kalkarmut der Knochen, wie man sie in Thyreotoxikosen findet, eigentlich nur eine Folgerung zulassen, nämlich die eines Vorliegens einer Steigerung der Nebenschilddrüsenfunktion. Wir wissen aus den experimentellen Un-

tersuchungen von Aub und anderen Autóren dass eine Steigerung des Grundumsatzes nicht als Ursache einer vermehrten Kalkausscheidung anzusehen ist. Demzufolge bleibt als einzige Schlussfolgerung nur die übrig, dass Hyperthyreodismus wahrscheinlich einen Aktivator für die Epithelkörperchen darstellt.

Wir kommen daher zu der Schlussfolgerung, dass in Fällen von Hyperthyreodismus die Schilddrüse die Nebenschiddrüsen aktiviert. Diese Behauptung stimmt mit der allgemeinen Ansicht überein, nach der Schilddrüse und Epithelkörperchen eine synergische Aktion besitzen; sie aktivieren einander auf reziproker Basis.

Auf jeden Fall ist eins sicher: wenn die Exstirpation der Schilddrüse vorgenommen wird, dann verschwinden die Schmerzen, die Kontrakturen bilden sich zurück, der Blutkalkspiegel sinkt ab zur Norm und eine neue Kalkablagerung in den Skeletknochen erfolgt.

Daraus ist zu folgern, dass chronischer Rheumatismus und unspezifische Arthritis in Verbindung mit Thyreotoxikose zurückzuführen sind auf Epithelkörperchenüberfunktion infolge auf Thyreotoxikose.

THE TRANSVERSE UPPER ABDOMINAL INCISION

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WHEN they first see it performed those not familiar with the transverse upper abdominal incision are inclined to conclude that the incision is unnecessarily long and highly destructive. Not a few experienced surgeons, satisfied with the paramedian incision, continue to hold this view; others who investigate further admit that their first impression was erroneous. Without exception my assistants who, by reason of circumstances, are forced to follow the cases to a finality, become enthusiastic about it.

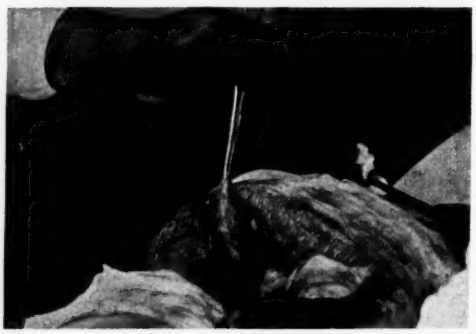

Fig. 1. Untouched photograph of transverse laparotomy in an obese subject. The gall bladder has been aspirated and cholecystectomy is about to be performed.

Although the incision is a very long one, it heals most beautifully. After six months the scar is hardly discernible, for it follows the creases of the adbominal wall.

Experienced nurses state that patients with a transverse incision are more comfortable during the post-operative period than those with a longitudinal incision. The reason for this is that there is extremely little tension, even when the patient coughs, for as the patient sits in Fowler's position the edges of the transverse incision tend to be thrust together.

The incision gives adequate exposure for most upper abdominal operations, but it is for cholecystectomy that I advocate it especially. It renders comparatively easy operations which would otherwise be extremely difficult, notably when abnormalities of the biliary apparatus are present, or when the cystic duct is encased in adhesions. The reason for this is the marvellous exposure that is obtained, even in extremely obese subjects (Fig. 1).

Yet another advantage is that, unlike the paramedian incision, the posterior layer of the rectus sheath with the peritoneum can be approximated with ease. It is only in very muscular subjects who are straining considerably that this difficulty is experienced by this layer tending to cut through.

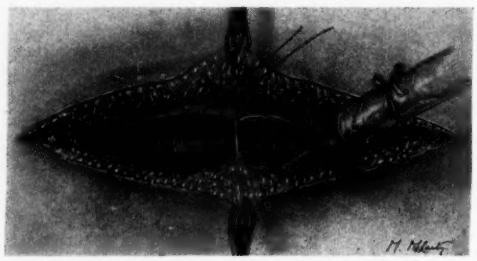

Fig. 2. Dividing the anterior rectus sheath and the underlying muscle with a diathermy knife. Note the method of ligating a bleeding artery in the muscle.

I have performed the transverse upper abdominal incision over 450 times, and I can state with confidence that burst

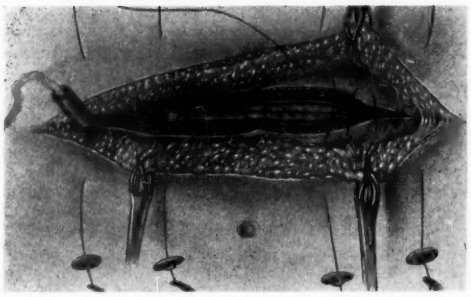

Fig. 3. Closing the anterior rectus sheath. Interrupted sutures are employed generally.

abdomen and post-operative incisional hernia occur, if anything, less often than with vertical incisions.

Technique

The incision passes right across the upper abdomen from the tip of the ninth costal cartilage on one side to that on the other. The rectus sheath is divided in the length of the incision and the rectus muscle, and more laterally the external and internal obliques are likewise divided. Division of the muscle layer can be carried out with advantage by the diathermy knife (Fig. 2).

It is unnecessary, indeed it is harmful, to sew the rectus muscle to its sheath. When its fibres are cut across it will be found that the rectus muscle does not retract within its sheath — the tendinous intersections prevent this. The vascularity of the rectus varies within wide limits. Sometimes there is hardly any bleeding at all; at others numerous arteries require attention. It is most desirable not to try to catch these bleeding points in a haemostat but to under-run them with a stitch; forcipressure crushes and tends to tear muscle fibres, and so often an ordinary ligature cuts through. If the bleeding points are under-run with a needle which, at the same time, picks up the edge of the rectus sheath, haemorrhage is controlled effectively. When haemostasis is assured, and the muscular layer is divided completely, the posterior rectus sheath and the peritoneum are incised. In the middle line the ligamentum teres will need division between ligatures.

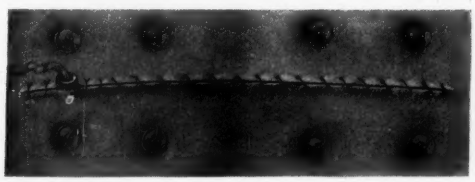

Fig. 4. The incision closed. Emesay buttons have been used for tension sutures.

Closing the Incision

As has been mentioned, there is usually no difficulty at all in approximating the posterior layer of the rectus sheath with the peritoneum. It comes together easily and is tough enough to hold the sutures without any tendency to cut through.

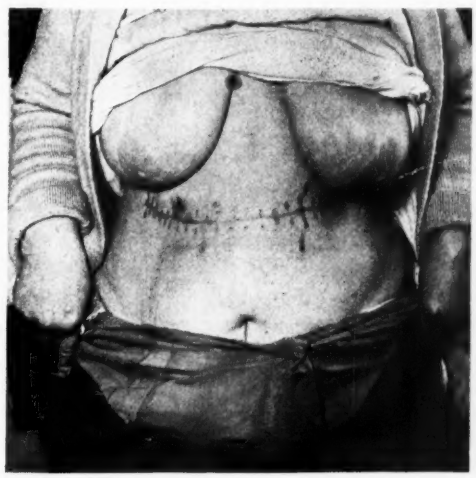

Fig. 5. Shortly after convalescence. The stitch marks are exaggerated by the photography.

The next layer which requires suture is the anterior rectus sheath (Fig. 3). This can be accomplished by continuous or interrupted sutures. As a rule, I employ interrupted sutures, and as they are inserted the assistant holds aside the subcutaneous fat with Lane's tissue forceps on each lip of the wound. When a continuous suture is used the linea alba is reinforced

by a single interrupted stitch applied in an X-shaped manner.

It should be noted that no attempt is made to suture the rectus muscle. When the posterior and the anterior sheaths have been approximated the cut muscle fibres will lie in apposition. Tension sutures are inserted usually two on either side of the middle line. The skin is approximated by either continuous or interrupted stitches (Fig. 4). Generally I prefer the latter, and use the number 80 linen thread.

Since adopting Thorek's technique for cholecystectomy (40 cases), no drainage has been employed, except in two cases where it was necessary to drain the common bile duct. The absence of the drainage tube allows a much more rapid convalescence, and the transverse laparotomy wounds have without exception been healed soundly in 14 or 15 days.

TREATMENT OF DYSMENORRHEA BY PRESACRAL NERVE RESECTION

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ETIOLOGY

THE definite cause of primary dysmenorrhea is unknown. It was formerly thought by many that it was due to stenosis of the cervical canal, but this has been very well disproven. Some have thought that it was due to endocrine imbalance and the fact that the administration of certain endocrine preparations causes temporary relief in many cases lends some color to the theory. Curtis (1) believes that it may be due to cramping of the uterine musculature ascribable to an excess of the estrogenic factor opposed by the corpus luteum hormone. It has been suggested by some that under-development of the uterus might be a cause, on the other hand, the uterus in most of these cases is quite normal in size and position. Cotte (2) believes that disfunction of the autonomic system resulting in a plexalgia or neuralgia of the pelvic sympathetic system is a frequent cause of dysmenorrhea. Some have suggested that it might be due to spasm of the blood vessels of the uterus, but since the uterus is a highly vascular organ, that does not seem to be a very reasonable or logical premise. Some have felt that it might be due to nervous instability, although many of the patients suffering from dysmenorrhea are in perfectly normal health. Undoubtedly nervous imbalance tends to make the symptoms worse as such patients have a lowered threshold for pain and no doubt feel their suffering more keenly. Schwartz (3) and Smith believe that allergy is a causative factor in certain cases. Undoubtedly such minor disturbances as constipation aggravate the condition.

TREATMENT

Generally, favorable conditions such as proper exercise, habits of living and sleep are of great importance. Belladonna and other mild sedatives are helpful in many cases. It is doubtful if morphine or its derivatives should be used, particularly as there is some tendency to the formation of the habit. Among the sedatives that are given most, benzyl benzoate is

Read February 28, 1938, before The International College of Surgeons at Tampa, Florida.

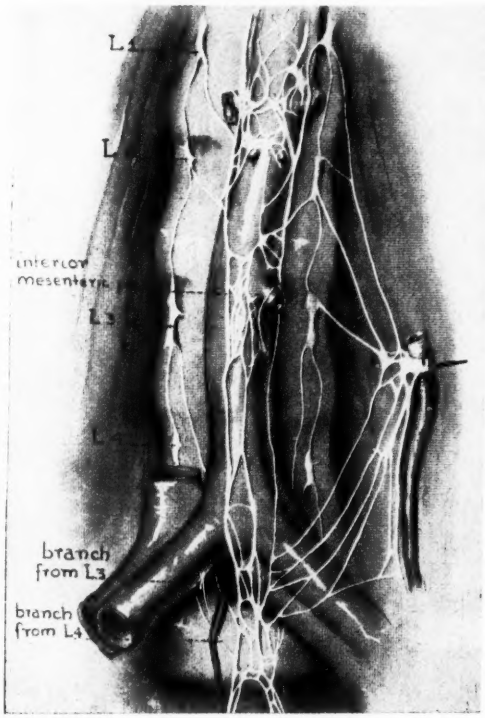

Fig. 1. Showing the origin of the superior hypogastric plexus as a continuation of the inferior mesenteric plexus, and the important branches to it from the first, second, third and fourth lumbar ganglia.

said to give relief in about fifty per cent of cases.

The treatment by estrogenic and other hormones is of great temporary value, as brought out by Stacy (4) and Shoemaker. In approximately one-half of the cases of mild dysmenorrhea associated with irregularity of the menstrual cycle the use of substances such as progesterone, emmenin, progynon and sistomensin will control the pain. Likewise small doses of radium or X-rays are to be considered as a means of obtaining relief when other methods have failed. In a recent review by the above authors of one hundred and thirty cases, it was observed that marriage and pregnancy relieved about thirty-six per cent of the cases. There is a moderate percentage of cases that are benefited by a thorough dilation of the cervical canal.

When all other available methods have had a fair trial and have failed, it is thought that presacral nerve resection should be resorted to certainly in cases of primary dysmenorrhea and in a considerable portion of the cases of secondary dysmenorrhea. White (5) has called attention to the fact that many forms of visceral pain can be relieved by section of the regional sympathetic nerve trunks. Cotte (6) has reported about three hundred cases of dysmenorrhea treated by presacral nerve resection with a successful outcome in most cases. In May, 1935, Dr. Hugh A. Bailey (7) and myself reported twenty cases of severe dysmenorrhea that had been treated by presacral nerve resection. Eleven of these were completely relieved, while five showed a great deal of improvement and four were unimproved. Approximately one-half of these cases were of the primary type, the others being secondary to various forms of pelvic disease. Several of these cases had undergone operation as far back as two and one-half years previously.

In December, 1935 (8), I reported before the Southern Surgical Association meeting, at Hot Springs, Va., twelve additional cases of dysmenorrhea treated by presacral nerve resection. Of these seven had complete relief, four showed marked improvement, while one had no relief. Primary dysmenorrhea, of course, is the type not dependent upon any apparent pathologic change in the pelvic organs. The retention of menstrual blood in the uterine cavity was formerly thought to be a cause of this type of dysmenorrhea, but in as much as the rate of menstrual flow is said to average about two-thirds of a drop a minute, a very narrow canal would carry this away. The psychic element must be considered in connection with this particular classification. This distressing condition, when characterized by pain beginning in the

region of the uterus, radiating to the anal and cervical regions, to the coccyx and urinary bladder, also in some cases to the back and thighs is the type considered most amenable to sympathectomy. A definite history of regularly recurring intermenstrual pain, is considered a contraindication to operation.

Secondary dysmenorrhea, may be the result of definite pathologic changes such as fibroid tumors, occluding polyps, salpingitis and endometriosis. It may also be caused by a strictured condition of the cervical canal following amputation of the cervix, too zealous use of radium or the cautery.

Fontaine and Herrmann (9) have discussed two types of cases in which they felt that presacral nerve resection is indicated:

1. Primary dysmenorrhea. Cases in which there are slight pathologic processes in the pelvis that do not respond to ordinary gynecological treatment.

2. Cases in which menstrual pain persists after correction or after removal of pelvic pathology.

The total series of cases reported have been selected for the most part, from the out-patient service in the clinic of the Charleston General Hospital, and were taken from a group of nearly five thousand pelvic cases examined during the past six years. All cases having symptoms that were indicative of urinary tract pathology, were passed on by a urologist.

TECHNIQUE OF OPERATION

The part of the presacral nerve plexus resected usually extends from the promontory of the sacrum to or just below the origin of the inferior mesenteric artery. Upon division of the peritoneum, air enters underneath the posterior peritoneum and in thin patients makes the nerve plexus nearly, if not altogether visible. The sheet of tissue containing the nerve fibers covers the left common iliac vein, the last inch of the aorta, the anterior surfaces of the fifth lumbar vertebra and extends laterally over the upper one and one-half inches of each of the common iliac arteries. While it has been more or less generally advocated that the nerve fibers be divided below the inferior mesenteric artery and dissected downward, it has seemed to me that the resection from below upward is easier. There are a few small accompanying veins that may cause troublesome bleeding at the lower cut end of the plexus. This portion of the plexus is usually ligated with fine plain cat gut, while in portions above this area bleeding is usually controlled by moist sponge pressure. It may be necessary at times, to apply a small patch of muscle tissue to a persistent bleeding point. It is not considered desirable to ligate nerve fibers in this area for fear that neuromata may develop as a consequence and be the cause of subsequent pain. The post parietal peritoneum is sutured continuously with fine plain cat gut. Occasional variations of the arrangement of the nerve plexus and anomalous arrangements of the pelvic mesocolon add to the complications of resection.

CASE HISTORIES

S. K., No. 38537, colored female, age 18, high school student, admitted to the hospital April 8, 1934, complaining of severe cramping in the lower abdomen incidental to the onset of each menstrual period. She states that she began menstruating at the age of twelve years and that all of her periods since, have been accompanied by severe and excruciating pain; that she is usually in bed for several days at the time of each monthly period.

Operation—Pelvic organs and appendix apparently negative. Resection of the presacral nerve and appendectomy. The patient made an uneventful recovery and left the hospital on the 12th postoperative day. On June 6, 1934, she reported complete relief from the pelvic pain at her monthly periods. However in September, 1935, she stated that she had married a few months previously and since that time had some recurrence of pelvic pain. Examination revealed an adherent mass on

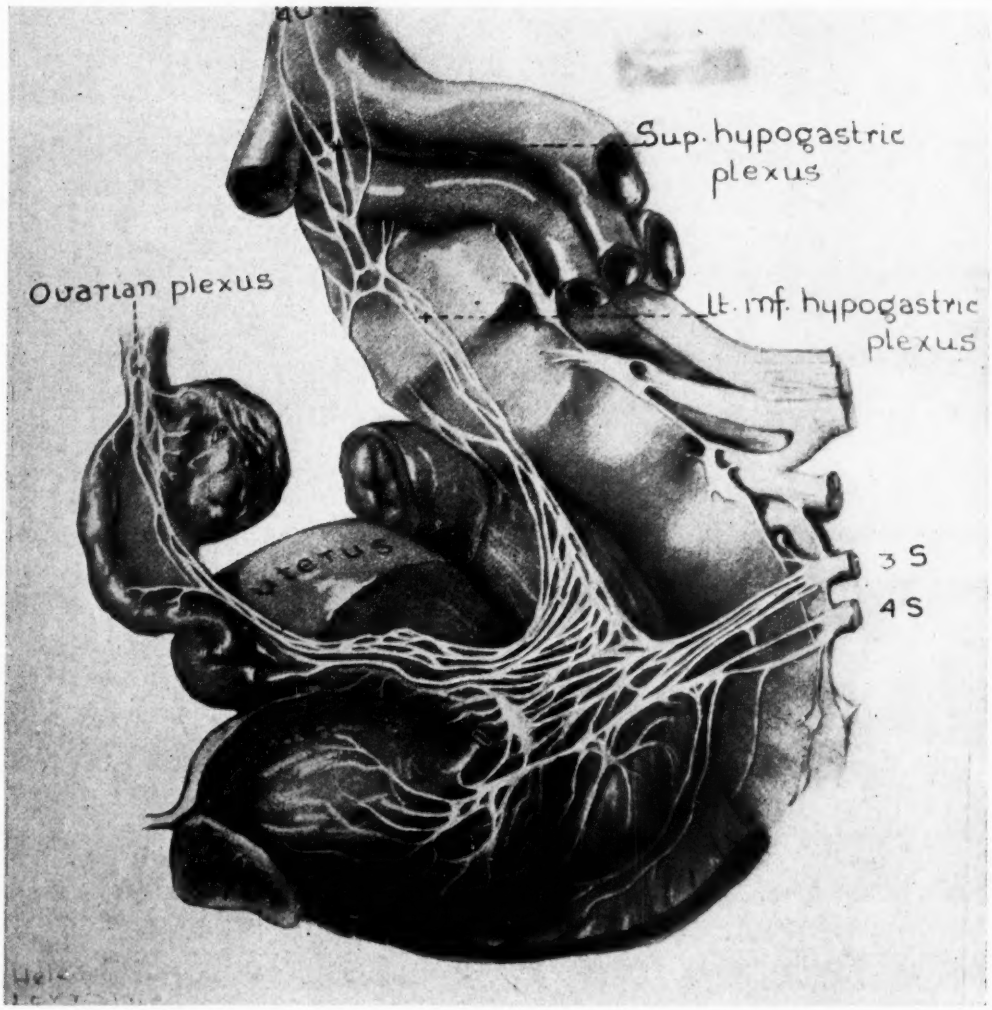

Fig. 2. Showing the division of the superior hypogastric plexus into its two terminal plexuses, *i.e.*, the right and left inferior hypogastric, and the distribution of the fibers from these to the uterus, ovary and bladder. Fibers from the 3 S and 4 S will also be noted.

the left side of the pelvis, apparently the result of tubo-ovarian infection.

Case 2. D. S., No. 40673, white female, age 19, admitted to the hospital on June 8, 1934, complaining of severe pelvic pain at her menstrual periods, especially during the first few days when she had to go to bed. She routinely spent from three days to a week in bed at each period, was violently nauseated, had severe pains running down the inner surface of both thighs. Had previously had a dilatation of the cervix without effect. Operation — June 9, 1935. The pelvic organs were found to be apparently negative in all respects. The appendix was removed and presacral nerve resection was performed. Following the operation the patient made an uneventful recovery and during her stay in the hospital menstruated once without pain. She was discharged June 23, in good condition, has returned several times at our request, for observation and states that she has experienced complete relief from her previous dysmenorrhea.

Case 3. C. W., No. 47950, white female, age 16, admitted to the hospital November 11, 1935, complaining of severe dysmenorrhea

since the beginning of menses at the age of thirteen. She had visited the hospital clinic several times seeking relief for this condition. At operation, pelvic organs and appendix were found to be apparently negative. Presacral nerve resection and appendectomy were done. A report from her family physician, Dr. J. L. Dunlap, on May 26, 1937, is to the effect that the relief from her operation was not entirely complete for at times it is necessary for her to take an aspirin tablet during the menstrual period, but otherwise she is very well satisfied and her general health is much better.

Case 4. I. G., No. 49450, white female, age 29, admitted to the hospital March 1, 1936, states that a very painful dysmenorrhea followed her marriage two years previous, and that the periods which had always been painful became progressively worse. Operation—March 4, 1936, a presacral nerve resection and an appendectomy were performed. Appendix was apparently normal, as well as the pelvic organs. A letter from her physician, Dr. H. D. Chambers, date of May, 1937, states that she has had complete relief from her complaints.

Case 5. O. C., No. 49318, white female, age 42, admitted to the hospital with a history of a painful and disabling type of menstruation for many years. Operation—March 13, 1936, a pelvic laparotomy was performed at which time, ovaries, tubes and appendix were found to be apparently normal. A presacral nerve resection and an appendectomy were done. On date of May 31, 1937, her physician, Dr. Ray I. Frame, reported the following: "I interviewed her recently and she told me, 'I have had no pain of any description in the abdomen since my operation. My menstruation is regular and without pain or discomfort of any kind. I am very happy with the results and am sorry that I did not have the operation done a long time ago.'"

Case 6. M. C. D., No. 57376, white female, age 35, admitted to the hospital on March 18, 1937. This patient has complained for a number of years of severe pain during menstrual periods. Pain is mainly in the left lower quadrant and at the end of the spine, also has a bearing down sensation, burning and pain on urination. No nocturia and no hematuria. Catheterized specimen of urine was found to be free from pus. Blood count was normal. Operation—March 20, 1937, she underwent a pelvic laparotomy. Uterus, tubes, appendix and ovaries were found to be apparently normal with the exception of a small cyst of the left ovary. A presacral nerve resection, appendectomy and resection of cyst were done. A report from the patient on February 10, 1938, states that she is now quite comfortable and that she does not have to go to bed at any time during her monthly period.

Case 7. E. H., No. 57205, white female, age 23, admitted to the hospital on May 10, 1937, complaining of severe menstrual pain for many years. Examination of blood and urine were negative. This patient was operated on May 15, 1937. Appendix was found to be adherent in post cecal position, uterus, tubes and ovaries were negative. Appendectomy and presacral nerve resection were performed. A report from this patient February 7, 1938, says that the results are very satisfactory. She is seldom bothered with pain during monthly periods; if at all, it is very slight.

Case 8. M. D., No. 58973, white female, age 34, admitted to the hospital complaining of painful menses since the age of 15. She says that it is usually necessary for her to remain in bed for several days each month. She has no children. Operation—August 10, 1937, an appendectomy and presacral nerve resection were performed. Appendix as well as uterus, tubes and ovaries were apparently normal. Her physician, Dr. A. E. Bays, reports to me on date of February 10, 1938, that while she did have some pain during the first two periods subsequent to the operation, since that time she has had one hundred per cent relief from painful menstruation and has gained thirteen pounds in weight since the operation.

Case 9. M. B., No. 60742, white female, age 20, admitted to the hospital November 5, 1937, complaining of severe dysmenorrhea of long standing. Pain is described as being colicky and cramping in both lower quadrants. Patient usually has to spend from one to two days in bed during every menstrual period. She underwent operation November 6, 1937, and on February, 1938, her physician, Dr. M. Albrecht, reports that she is entirely and completely relieved since her operation.

SUMMARY

Up to December 31, 1937, the following cases occurring in my service have undergone the operation of presacral nerve sympathectomy and have been traced with the following results:

1. Cases of primary dysmenorrhea.....40
2. Cases of dysmenorrhea associated with definite pelvic pathology.....21

3. Cases of primary dysmenorrhea in which there was complete or marked relief 37
   Unimproved 3
4. Cases of secondary dysmenorrhea, complete relief 8
   Cases of secondary dysmenorrhea, improved 7
   Cases of secondary dysmenorrhea, no relief 6

Indications for presacral sympathectomy in the treatment of dysmenorrhea are: Primary dysmenorrhea that has resisted other available forms of treatment. Secondary dysmenorrhea that in the surgeon's opinion will not be relieved by the correction or removal of the established pelvic pathology present.

The type characterized by pain, beginning in the region of the uterus and radiating to the anal and cervical regions, to the coccyx and urinary bladder, also in some cases to the back and thighs, is the type considered most amenable to sympathectomy.

The end results compare favorably with those resulting from other well established surgical procedures.

A definite history of regularly recurring intermenstrual pain is considered a contra-indication to operation.

In a series of 40 cases of primary dysmenorrhea, three cases were unimproved. Nine case histories are reviewed.

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RÉSUMÉ

Les indications pour la sympathectomie présacrale dans le traitement de la dysménorrhée sont: Cas de dysménorrhée primaire qui ont résisté aux autres traitements. Cas de dysménorrhée secondaire que le chirurgien ne croit pas pouvoir soulager par la correction ou l'ablation de la pathologie pelvienne présentée par la malade.

Les cas les plus approprié à la sympathectomie sont ceux caractérisés par la douleur débutant dans l'utérus et rayonnant vers les régions anale et cervicale, vers le coccyx et la vessie-urinaire, et, dans certains cas, vers le dos et les cuisses.

Les résultats comparent très favorablement avec ceux que donnent les autres procédés opératoires reconnus.

Si la malade se plaint de douleurs intermenstruelles récidivantes, l'opération est contre-indiquée.

Dans une série de quarante cas de dysménorrhée, il n'y eut que trois cas qui ne montrèrent aucun soulagement. L'auteur relate les commémoratifs de neuf de ses cas.

ZUSAMMENFASSUNG

Praesacrale Sympathektomie in der Behandlung der Dysmennorhoe ist angezeigt in den folgenden Faellen: Primaere Dysmennorhoe, die allen anderen gelaeufigen Behandlungsformen getrotzt

hat. Ferner sekundaere Dysmenorrhoe, die nach der Ansicht des Chirurgen keine Besserung erfahren erfahren wuerde, wenn die vorhandenen pathologischen Bedingungen des Beckens entweder entfernt oder richtig gestellt werden.

Besonders der Typ von Dysmennorhoe, der durch Schmerzen, die in der Uterusgegend beginnen und zur Anus-und Cervixgegend, zum Steissbein und zur Harnblase und bisweilen auch zum Ruecken und in die Oberschenkel ausstrahlen, gekennzeichnet ist, ist als geeignet zur Sympathektomie anzusehen.

Die Endresultate sind guenstig im Vergleich zu den Ergebnissen, die durch andere eingefuehrte chirurgische Verfahren erzielt werden.

Eine eindeutige Vorgeschichte von regelmaessig wiederkehrenden intermenstruellen Schmerzen ist als Kontraindikation zur Operation anzusehen.

Von einer Serie von 40 Faellen von primaerer Dysmennorhoe konnte in 3 Faellen keine Besserung erzielt werden. Neun Krankenberichte werden wiedergegeben.

SUMARIO

Indicaciones para la simpatectomía presacral en el tratamiento de las dismenorrea son: Dismenorreas primitiva que han resistido otras formas conocidas de tratamientos. Dismenorrea secundarias que en la opinion del cirujano no se mejoran con la corrección ó extracción de la patología presente en la pelvix.

El tipo caracterizado por dolor empezando en la region del utero é irradiandose á la region anal, cervical, coxis, vejiga, y tambien en algunos casos hacia atraz y al muslo es el tipo que se considera mas favorable para la simpatectomia.

Las comparaciones de los resultados finales son mas favorables que otros procedimientos quirurgicos bein establecidos.

Una historia bien definida de dolores recurentes intermenstruales es considerado como una contraindicación para la operación.

En una serie de cuarenta casos de dismenorrea primaria, tres casos no se mejoraron. Historias en nueve casos son revisadas.

RIASSUNTO

Le indicazioni della simpatectomia presacrale sono le seguenti:

Dismenorrea primaria che has resistito agli altri metodi di trattamenti. Dismenorrea secondaria che nell'opinione del chirurgo non sara' corretta con la rimozione delle lesioni pelviche presenti.

Il tipo caratterizzato del dolori nella regione pelvica con irradiazione nel perineo e al coccige e vescica ed in alcuni casi nella regione sacrale con irradiazione nei muscoli femorali e il tipo piu' adatto alla simpatectomia.

I risultati sono paragonabili ad altri procedimenti chirurgici.

La storia clinica di ricorrenti dolori intermestruali e considerata una contraindicazione.

In una serie di 40 casi solo 3 non furono beneficati. L'autore ha discusso nove casi tipici.

AN IMPROVED TECHNIQUE FOR THE CORRECTION OF THE INGUINAL HERNIA

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ELKINS, WEST VIRGINIA

THOUGH surgery has made many noteworthy advances during the past two decades, little progress has been accomplished in reducing recurrences following the correction of the Inguinal Hernia. The principles of Bassini and Halstead, with few modifications, are still adhered to. Gallie (1), LeMesurier (1), and others have recommended the use of both living and dead fascial strips. Andrews (2) has presented an imbrication suture, and a fascial to fascial (3) method of repair. Others (4) have advocated modifications of the original technique, but recurrence still exists. Coley (5) has stated that there should not be over five per cent recurrence. Burdick, Gillespie and Higinbotham (6) report a recurrence of 17.7% at the end of the first year. Cattell and Anderson (7), reporting from a well known Clinic, give a low recurrence of 6.7% in unilateral and 18.1% in bilateral operations, and conclude that the bilateral procedure should not be done at the same time. Others report as low as 0.8% recurrences. If we accept the statement of Edmund Andrews (8) that about four million people in the United States are affected by hernia, and appreciate the serious economic status of those affected, then every effort must be made to reduce the recurrence.

At present the anatomical mechanism and etiology of the inguinal hernia are debatable. Piersol (9) tabulates a group of predisposing causes; Hill (10) is of the opinion the sac is not connected with the original invagination of the peritoneum as the testicle descends; Zimmerman (11) explains the development of the hernia as a result of malformation of the internal oblique. Moorehead believes all herniae are congenital. Thus we find opinions so diverse that conclusions cannot be obtained.

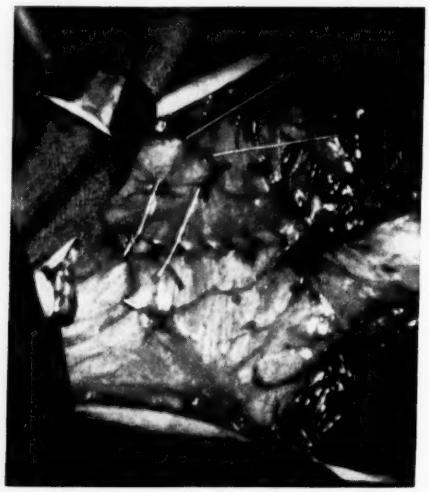
Failure of union may be divided into two phases. First the mechanical failure to obtain apposition of the tissues so that healing can take place. To overcome this, Gallie (1) has presented the use of living strips of fascia lata. Dead fascia has been used, but the results have been questioned. Halstead originally advocated the use of silk instead of catgut because of its lasting qualities, but laboratory experiments have failed to show the value of silk in producing a stronger scar. Kangaroo tendon has been used by many. Andrews (2) advocated the overlapping of the external oblique fascia, thus obtaining a double layer of fascia, etc. The second cause of failure is tissue healing. While we have academic dispute between Seelig and Chouke (12) on the one side, stating that muscle only rarely heals to fascia, and Koontz (13) proving that when muscle is debrided of all loose areolar tissue, it will join fascia. From a practical standpoint it is proven daily in the operating room that muscle will adhere to fascia with a more or less firm scar. Gillespie (4) believes failure is frequently due to tension and in some of the muscle-fascia experiments it is definitely proven that scar thins out under tension.

In this communication the modus operendi of the recurrence of the Inguinal Hernia is based on the presumption that such recurrences are primarily due to failures to overcome mechanical factors which are well known to the surgeon and which interfere with healing in any part of the body. Union is a natural process and under favorable conditions will always take place. While it is true that

some interference with the physiology is frequently responsible for non-union, and this is best illustrated in bone healing, in soft tissue union this rarely occurs, and those diseases where it does occur, with rare exception are readily demonstrable. Nor are we interested in the strength of the scar in muscle to fascia healing if we have developed firm union in the external oblique fascia. It is this layer of fascia which normally gives support to the abdominal wall. Our primary interest, therefore, is a reconstruction that will give the original abdominal support. In our opinion the muscle does play a very definite part in the protective mechanism. Being composed of numerous small fibres it is resilient. This resiliency dissipates intra-abdominal trauma, and thus protects the fascial layer from the continued localized trauma which would otherwise exist. Zimmerman's (11) findings that the muscle layer is abnormal in all cases developing hernia, bears out this observation.

Anesthesia plays a definite role in the corrective surgery. There must be relaxation during the operation which will permit apposition of the tissues without traction. Fallis (12) emphasizes spinal anesthesia because of the above reasons, and Huston reports only 0.8% recurrences where this type of anesthesia is used. The procedure is a safe one, but the same training is indicated in the use of spinal anesthesia as with any of the more delicate anesthetic procedures. We routinely use neocaine because of its low toxicity (13). Another, and extremely important point in favor of this anesthesia is the lack of post-operative vomiting, distension, and undue body strain because the patient can co-operate. The patient can move his legs freely on his return from the operating room, a fact of great importance in avoiding venous stasis in the lower extremities. Early feedings avoid intestinal fermentation and distension. All cases reported in this paper were operated upon under subarchnoid anesthesia.

Basically our operative technique is not new. The incision is made as usual, the external oblique fascia cleansed of all areolar tissue, and all bleeding points ligated. Post-operative bleeding invites wound infection. The canal is opened and the cord inspected for hydrocoeles and varicocoeles. These should be corrected before continuing with the operation. The sac is now located and opened. It is much easier to free the sac with a finger



The "suspension" suture has been placed but tension has not been made. The suture passes above and below all coaptation sutures.

inside. However, there is a more important reason for opening the sac. With a finger passed into the abdomen the full size of the sac can be ascertained, and failure to do this is probably one of the most common causes of immediate recurrences. Frequently there exists a double sac, often referred to as the "saddle sac." The old dictum of removing the sac at the neck is wrong. The neck is merely a thickened restriction occurring sometime during the development of the sac. Before removing all redundant tissue, care should be exercised in noting the contents of the sac, and the position of the bladder. The peritoneal opening is closed

with a purse string suture if small, or an over and under suture if large. The free ends of the suture are then drawn and fixed high under the transversalis fascia. Andrews (2) believes this fascia plays an important part in the formation of the floor of the canal.

We do not transplant the cord. In the original construction of the anterior abdominal wall the cord is protected by superficial layers of muscle. If we are correct in the supposition that nothing should interfere with the reconstruction of a firm anterior wall, then either bringing the cord out through a new opening, or passing it between the layers of fascia, is defeating this purpose, as each will tend to weaken the wall by interference with healing. Hendon (14) disapproves of transplantation on the grounds that it lowers the area of contact for union, which is one of the cardinal facts in plastic surgery.

The sac having been removed, and all cord anomalies corrected, we are prepared to reconstruct the anterior abdominal wall. Effort is made to reproduce the original architecture of nature in so far as possible, and to permit healing without interference.

The inguinal edge of the divided external oblique fascia is reflected back in order to expose the inguinal ligament. To this ligament are sutured the layers of muscles and the external oblique fascia. This is best obtained by using the original Andrews (2) suture with chromic catgut No. 2. The Andrews (2) suture coaptates the layers as individual units, thus avoiding extreme tension with resultant constriction which can produce serious technical faults. First, the muscle tissue or the fascial fibres can tear out. Second, individual tight sutures may produce atrophy due to impedence of circulation. Sufficient of these sutures should be placed to insure even apposition without undue strain. The muscle should not protrude in the line of fascial to fascial coaptation. With the fascia cleaned the reflected free edge is made to overlap the fixed fascial surface. These two layers are sutured together with chromic catgut No. 1, either as a continuous or interrupted suture. All suturing should start as close to the symphysis pubis as possible and be carried above the internal ring.

Up to this point we have presented an operation which is mechanically correct. All layers of the abdominal wall have been replaced in their normal position. The cord has not been transplanted. Sutures have been so placed as to permit coaptation without tissue destruction; but we have failed to carry out one of the cardinal principles of surgery. Healing either will not take place under strain, or if it does, the union is weak, and there is rapid thinning of the scar. To correct this we have devised the Suspension (15) Suture which releases all strain on the suture lines and protects the area from intra-abdominal trauma during the life of the suturing material, which has proven sufficiently long to insure firm union under ideal conditions. This suture is a reverse mattress suture. The insertion is made above the suture line of the over-lapping transversalis fascia, carried superficially over the fascia to a point below the knots of the Andrews (2) suture. By reversing the procedure it is brought back to a point opposite the insertion. Traction is placed on the free ends and it is tied. By this all underlying tissue is relaxed. This traction must be made before the knots are started to avoid a sawing motion which will weaken any suturing material. Sufficient number of these Suspension Sutures should be placed to insure even relaxation of the whole area, and it is important that one shall be placed above the internal ring. The skin is closed in routine fashion, and the patient is kept in bed for sixteen days.

Two hundred and eight operations of

this type have been carried out in the past eight years on *one hundred and eighty-nine cases.* Nineteen of these were bilateral repairs. A personal follow up of most of these cases have continuously been made and there have been no recurrences to our knowledge. The fact that the most of these operations were performed on miners in active work seems to emphasize the security obtained by this procedure.

The advantages of the technique presented:

1. It replaces all tissues in their normal anatomical relationships.

2. It does not transplant the cord.

3. The apposition of two broad layers of fascia is obtained without transplant, and without interfering with the normal blood supply.

4. Apposition sutures are so placed as to avoid cutting-off or producing atrophy due to impaired circulation.

5. Muscle tissue is not relied upon for abdominal support, but for dissipation of trauma.

6. The Suspension Sutures, by splinting the part and relaxing the suture lines permit healing under ideal conditions, thus following the basic principles of all plastic surgery.

7. A report is made on one hundred and eighty-nine cases, nineteen of bilateral repair, without known recurrence over a period from three months to eight years. Subarachnoid anesthesia was used in all cases. Neocaine was the anesthetic vehicle because of its low toxicity.

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RÉSUMÉ

L'auteur rapporte 189 cas de hernies inguinales dont dix-huit étaient bilatérales. Les cas furent observés pendant une période de trois mois à huit ans. Il n'y eut aucune récidive. La plupart des opérés sont des ouvriers travailant dans les mines.

La technique décrite par l'auteur présente les avantages suivants:

Tous les tissus sont replacés dans leurs sites anatomiques normaux. Le cordon n'est pas transplanté. L'apposition des deux larges feuillets du fascia est obtenue sans greffage et aussi sans entraver aucunement la vascularisation normale des tissus intéressés. On ne compte pas sur le tissu musculaire comme support abdominal mais plutôt comme dissipateur des heurts.

L'auteur emploie une suture matelassée. Les points de suture sont placés de facon à ne pas léser la circulation sanguine.

Pour obtenir le relâchement des tissus, l'auteur a recours à la néocaïne. Cet agent a une faible toxicité. Dans tous les cas, l'anesthésie sous-arachnoïdienne fut employée. Il ne fut observé aucun cas de vomissements post-opératoires, aucun cas de distention abdominale. Il est important de permettre au malade de remuer ses jambes en rentrant afin d'éviter une stase veineuse des membres inférieurs.

ZUSAMMENFASSUNG

Es wird ueber 189 Faelle berichtet, davon 19 bilateral, bei denen ein Rezidiv waehrend einer Zeitspanne von 3 Monaten bis zu 8 Jahren nicht bekannt geworden ist. Die Mehrzahl der Patienten waren taetige Minenarbeiter.

Die Vorteile der beschriebenen Technik sind:

Alle Gewebsschichten werden in ihren normalen anatomischen Beziehungen belassen. Der Samenstrang wird nicht verlegt. Die Benutzung von zwei breiten Faszienschichten wird ermoeglicht ohne Gewebsverlagerung und ohne Stoerung der normalen Blutversorgung. Musku-

latur ist ungeeignet als Stuetze fuer die Bauchwand, aber geeignet als schuetzender Puffer gegen von aussen kommende Gewalten.

Eine spezielle Naht wird angewandt, um waehrend der Heilung jeden Zug an den Naehten zu vermeiden. Die Naht wird so angelegt, dass die Blutversorgung nicht beeintraechtigt wird.

Neocaine wurde benutzt, um sichere Erschlaffung zu erzielen und ausserdem, weil es nur in geringem Grade toxisch ist. In allen Faellen wurde subarachnoidale Anesthesie angewandt. Postoperatives Erbrechen, aufgetriebener Leib oder uebermaessige Spannung war nicht zu beobachten. Der Patient kann seine Beine benutzen, wenn er vom Operationsraum zurüeck kommt; dieser Umstand ist von grosser Bedeutung fuer die Vermeidung von venoeser Stauung in den unteren Extremitaeten.

RIASSUNTO

L'autore rapporta 189 casi, 19 bilaterali operati senza recidive in un periodo di 3 mesi a 8 anni. In maggioranza i pazienti erano minatori in attivo servizio.

I vantaggi della technica usata sono i seguenti: i tessuti sono portati in apposizione anatomica; il cordone non e' trapiantato. L'apposizione di due strati di fascia e' ottenuta senza trapianto e senza disturbo della circolazione. L'operazione non dipende sul muscolo per sopporto addominale e per dissipazione di trauma.

Una sutura a materazzo e' usata per impedire la trazione dei tessuti durante il processo di cicatrizzazione.

La Neocaina e' stata usata a motivo della bassa tossicita'. La rachi-anesthesia e' stata usata in tutti i casi. Tale metodo di anestesia ha il vantaggio di permettere i movimenti dell'estranita' e di impedire la stasi venosa.

SUMARIO

Un reporte es hecho en 189 casos, 19 bilateral, sin una recurencia conocida durante un periodo de tres meses á ocho años. La major parte de los enfermos eran minéros y en trabajo actívo.

Las ventajas de la tecnica presentada son:

Los tejidos son restituidos a las relaciones anatómicas normal. El cordon no se transplanta. La aposición de las dos capas anchas de la aponeurosis es obtenida sin transplantar, y sin interferir con la irrigación normal de la sangre. No se depende del tejido muscular para el soporte del abdomen, pero si para la desipación del trauma.

Una sutura reversa de bastidor se usa para evitar tirantez en la linia de sutura durante la cicatrización. Las suturas son puesta de tal modo que la circulación no se trastorne.

Neocaina fue usada para asegurar relajamiento y por su baja toxicidad. Anestesia subaracnoidea se usó en todos los casos. No hubieron vómitos post-operativos, distensión ó esfuersos innecesarios del organísmo. El paciente puede mover sus piernas al volver del salon de operaciones lo cual es de una importancia muy grande para evitar éstasis venoso de las extremidades inferiores.

ELECTROSURGICAL OBLITERATION OF THE GALL BLADDER WITHOUT DRAINAGE*

A REPORT OF 471 CASES

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REMOVING the gall bladder by means of the scalpel yields in competent hands a mortality of about 1 or 2 per cent in uncomplicated cases. The mortality increases with age and is greater in males than in females. It ranges around 10 per cent, and taking into consideration the unreported results of the general surgeon, it may on occasion be as high as 20 or 30 per cent or even higher, depending upon the presence of complications (Table I).

An analysis of fatalities following classical cholecystectomy affords food for the following reflections:

1. From 15 to 25 per cent of patients have enlarged bile capillaries and small bile ducts running in the gall bladder bed which cause bile leakage when the gall bladder is removed from its bed with the scalpel.

2. Bile in the peritoneal cavity when sterile is a chemical poison. When infected it may give rise to biliary peritonitis.

3. A properly ligated cystic duct does not leak; bile usually issues from the gall bladder bed as pointed out by Bakes (1928). He observed bile issuing from the wound 230 times in 346 cases of simple cholecystectomy. Like many other surgeons he was impressed by the post-operative appearance of bile in the dressing "in nearly all the cases."

4. After classical cholecystectomy the gall bladder bed cannot always be obliterated by sutures. Drainage is then resorted to and this invites leakage. Open, unprotected bile and blood channels in the gall bladder bed, following cholecystectomy by the classical method, offer a favourable atrium for the entrance of micro-organisms.

TABLE I

Mortality statistics in gall bladder operations (1908-32)

—	Year	Cases	Mortality (per cent.)
Cotte, M.	1908	Not given.	M., 33 F., 18
Davis, B. B.	1921	563	8.17
Enderlen and Hotz.	1923	12,144	9.28
Brentano.	1923	280	M., 36.78 F., 17.29
Villard.	1925	131 cholecystostomies	M., 34 F., 21
Duclos.	1926	Global mortality.	M., 36 F., 23
Davis, B. B.	1928	160	3.75
Cattell, R. B.	1929	311 (complications 55)	M., 9.1 F., 6.8
Sanders, R. L.	1930	18 reported series, totalling 60 cases.	15
Verbrycke.	1927	169*	8.8 28.5 15
Tixier, Clavel, and Chabannes	1932	11 males. 149 females.	M., 36.38 F., 16
Thorek.	1910-32	188 males. 511 females.	M., 16.8 F., 9.4

*Operated on by 23 surgeons; one surgeon had 10 and another had 20.
M.=Male. F.=Female.

5. Drainage causes trouble in a number of ways (augmentation of bile seepage; thrombosis and embolism; hæmorrhage from erosion of vessels; cholæmic bleeding; embarrassed cardiac

*Read at the British Postgraduate Medical School, London, on Sept. 8, 1937, and at the Southern Assembly of the U. S. Chapter of The International College of Surgeons, Tampa, Fla., Feb. 28, 1938.

action, particularly in the aged; pneumonia; acute dilatation of the stomach; biliary fistulas, &c.). To put it differently, *many patients die after gall bladder operations not because they were not drained but because of drainage.* Nevertheless though many dangers may be eliminated by omitting drains, drainage instituted where classical cholecystectomy is practised may be the means of saving a life.

In striving to ascertain how the evils of drainage can be avoided and how one

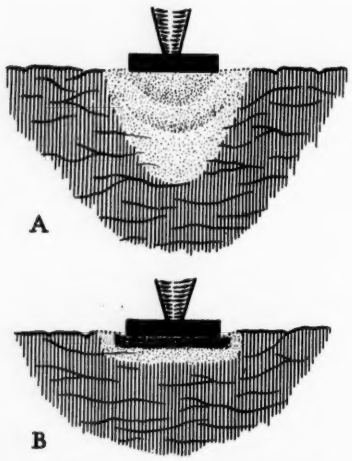

Fig. 1. Effects of electrocoagulation and of carbonization. In (A) one observes the degree and extent of electrocoagulation when correct technique is used. The dense area immediately under the electrode indicates that here the action is of greatest intensity. It gradually decreases as indicated in the diagram. Marginal action is seen to extend for some distance from the border of the electrode. With improper use (dielectricum) and the application of too much current, charring results immediately under the electrode (B). Such eschar insulates the area acted upon and further effects of coagulation are frustrated.

may frustrate leakage from divided capillaries and small bile ducts, I thought that if a dry, non-leaking surface could be substituted for the discharging cavity represented by the gall bladder bed resulting from classical cholecystectomy, it would be an important step in the right direction. Experimental studies on dogs and monkeys proved that this can be accomplished by proper electrocoagulation, which, when properly performed, converts the tissues into a hyaline-like, dry, aseptic, inert tampon. Unfortunately, electrocoagulation is still confused by the uninitiated with fulguration and carbonization, which are entirely different in their action and effects. It is important to understand the differences (vide Ellis, 1932).

Monopolar sparking from a high-frequency transformer of Tesla, d'Arsonval, or Oudin was termed *sideration* by Keating-Hart and *electrodissection* by Clark and later *fulguration* by Pozzi. Nagelschmidt introduced the now accepted term *diathermy. Bipolar diathermy* for surgical purposes was first called *voltaisation bipolaire* and later *electrocoagulation* by Doyen; Delherme and Laquerrière spoke of *endothermy,* showing that the heat is produced in the patient's body. George Wyeth in 1926 simplified the terminology by coining the terms *medical* and *surgical diathermy.* Hanschen speaks of *exsiccation, charring,* Heitz-Boyer of *etincélage,* Cushing of *dehydration,* Kowarchik of *electrotomy,* von Seemen of *Schmelzschnitt.*

If a flat electrode of a bipolar current is firmly applied to a tissue surface and a current of proper voltage and sufficient amperage is permitted to pass through it, dehydration and coagulation of the tissue-proteins results in a few seconds and the tissue turns white. This is *electrocoagulation.* On the other hand, if this same electrode is not applied firmly or if it is used as a unipolar instrument, a small air-space (dielectricum) intervenes between the electrode and tissue and *sparking, fulguration,* and *carbonization* with black discoloration of the tissue surface results. A reapplication of the electrode to such fulgurated or carbonized surface will stop further current-penetration and prevent coagulation from taking place (Fig. 1). In cauterization the heat is brought to

the tissues from the outside by the heated instrument, whereas in bipolar or short-wave electrocoagulation the heat is produced in the patient's body (75,000 to 3,000,000 or more oscillations are produced per second depending upon the type of apparatus used).

Definite tissue changes take place when the liver is subjected to the electro-

TABLE II

Electrosurgical obliteration of the gall bladder

Cases operated by Thorek		337	
Cases operated by others (Kellogg, Warren, Finlayson, Baller, de Victoria, Weyman, Heineck, Montgomery, R. Russell Best, Bailey and Love)		139	
Total of unselected cases of gall bladder disease operated on to date (September, 1938)		—	476
Sex	Male	43	
	Female	304	
Age	Youngest	18	years
	Oldest	74	"
Average high temperature		100°	F.
Average days in hospital		15.5	
Pathologic conditions found at operations — (1) acute and chronic cholecystitis; (2) cholelithiasis; (3) hydrops vesicæ fellæ; (4) empyema of the gall bladder; (5) acute hæmorrhagic cholecystitis; (6) hepatitis; (7) adhesions; (8) chronic pancreatitis.			
Post-operative complications — (1) bilateral pleurisy with effusion, ten days after operation; cleared up; patient left hospital 27 days after operation; (2) wound infections (3 cases).		About 0.5%	
Mortality (three deaths). Causes of death—(1) bilateral pulmonary collapse; (2) pneumonia, three weeks after operation; (3) subdiaphragmatic abscess.		About 0.5%	

coagulating bipolar current. This problem has been ably worked out jointly by Kuntzen and Vogel (1931). Electrocoagulated surfaces within the abdomen do not slough as do surfaces on the exterior or in open cavities (mouth, vagina, cervix); in such places coagulated areas are eliminated by extrusion, but within the abdomen they become encapsulated and are absorbed. Electrocoagulated surfaces on parenchymatous organs develop an affinity (a positive chemotaxis) for serous surfaces, attracting contiguous organs covered with serosa (omentum, stomach, bowels). I have observed such agglutinations three hours after electrocoagulating the surface of the liver. Firm union takes place in a comparatively short time. Capillaries and blood-vessels of an electrocoagulated area do not thrombose but a recession of the column of blood is formed within the vessel, above and below the point of contact of the electrode, and the vessel walls coalesce with the contiguous, homogeneous, hyaline-like structures mentioned. Such changes do not take place with fulguration or carbonization.

Another important fact to be remembered is that electrocoagulation of the tissues in the gall bladder bed frustrates secondary hæmorrhage because of the pressure exerted by the sequestrated, coagulated segment against the contiguous tissue. Thus *electrocoagulation substitutes a secure sterile tampon for an insecure open cavity at the site of the gall bladder bed,* resulting from classical cholecystectomy. Of late I have been using short-wave unipolar coagulation with entire satisfaction.

EVOLUTION OF AUTHOR'S METHOD

For some years we performed experiments upon large dogs and monkeys (*Macacus rhesus* and *M. leoninus*). Anatomic differences and lack of gall bladder pathology in these animals should be kept in mind. My experiments allow the following conclusions:

1. The posterior gall bladder wall and bed of the gall bladder may be effectually electrocoagulated and their structure converted into an inert dehydrated hyaline-like aseptic tissue.

2. Electrocoagulated borders of the

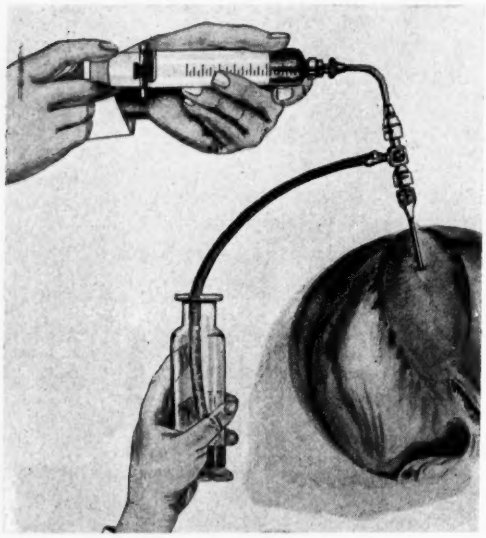

Fig. 2. Author's gall bladder aspirator.

gall bladder thus treated may be approximated with sutures.

3. The ligamentum falciforme hepatis may be completely detached and when superimposed over an electrocoagulated surface will become intimately united with it.

4. The abdomen may be closed without drainage in such instances provided the cystic duct is securely ligated and the cystic artery closed by double ligation.

Priority for introducing electrosurgery in gall bladder disease belongs to Trowbridge. He described electrosurgical cholecystectomy with recovery in 1928. Heymann (1930) substituted the diatherm knife for the scalpel, as did also Keysser, Mirizzi and others; the results were little different from those of classical cholecystectomy. Pribram (1928, 1929) used carbonization of the mucosa with the Paquelin burner and later (1933) with a diatherm apparatus. He called his method *mucoclasis*. Pribram's procedure is a fulguration method aiming at destruction of the mucous membrane of the gall bladder; but as I have shown in another communication (1933) it does not entirely obliterate the gall bladder and thus eradicate disease, for the charred mucosa prevents the current from reaching the depths of the affected zone in the gall bladder wall — viz., the Rokitansky-Aschoff sinuses which harbour infection. Equally, simple fulguration is not adequate where the infection has extended into the depths of the gall bladder wall, bed and liver substance to various depths. Whitaker (1930) combined Pribram's cauterization procedure with drainage in 16 cases, disregarding the admonition that electrocoagulated surfaces must never be drained, and reported a mortality of 18.75 per cent!

After using Pribram's method for some time, I found that patients were not relieved of their symptoms and required reoperation. At such time it was noted that there was regeneration of the mucous membrane of the gall bladder mucosa and the diseased layers of the gall bladder were little or not affected at all. Infection persisted. It occurred to me then that complete destruction of the gall bladder wall would be a step in the right direction. The following procedure was evolved:

(1) Electrosurgical obliteration of the posterior gall bladder wall and gall bladder bed by electrocoagulation (biterminal or by short wave) thus substituting a sterile, dehydrated tampon for a bleeding, bile-leaking surface.

(2) The great tendency of electrocoagulated surfaces to become agglutinated with serous surfaces caused me to muster the falciform ligament into service.

(3) Strict avoidance of drainage.

Thus far (September, 1938) 476 operations have been performed by my method in cases of gall bladder disease including gangrene, empyema, and sclerosis. Of these, 337 cases were done by myself and the remainder 139 by Drs. Homer S. Warren, Jr., Bliss Finlayson, Edward L. Kellogg, Cassius Lopez de Victoria, Stanley Baller, R. Russell Best, Hamilton

Bailey, R. J. McNeill Love and others. There were 3 deaths in this series. One patient succumbed to an undiagnosed chronic subdiaphragmatic abscess some time after operation (postmortem confirmation). Another patient died from massive bilateral pulmonary collapse, and the third from pneumonia about three weeks after the operation. If these 3 deaths are credited to the operation, we are confronted with a mortality of about ½ of *1 per cent.* A comparison of these results (Table II) with those shown in Table I shows a sharp contrast. Whether my procedure alone or the painstaking pre- and post-operative care of patients, or both, was responsible for these results, I cannot say; but certainly thorough preoperative preparation of the patient is imperative.

OPERATIVE TECHNIQUE

Step 1. In well-trained hands, subarachnoid block is the anæsthetic of choice; otherwise, inhalation anæsthesia is administered. The patient is placed in the Mayo-Robson position with the lower thorax and upper abdomen sufficiently elevated. When the biterminal apparatus is used, a large flat, indifferent electrode is snugly applied over the sacrum. Where short-wave is used an indifferent electrode is not necessary. A straight longitudinal paramedian incision is made beginning at the lower costal margin and extending to about the level of the umbilicus. Hamilton Bailey's transverse incision affords excellent exposure.

Step 2. *Mobilization of the falciform ligament.*—This structure is completely detached from the anterior abdominal wall. The detached ligament is now placed in a receptacle containing warm normal salt solution. In detaching the falciform ligament from the anterior abdominal wall, some small vessels are severed; these must be carefully ligated. Pack the viscera out of the way and obtain good exposure by efficient retraction. (The hypodermic injection of an ampoule of prostygium about ten minutes before the operation is begun aids in keeping the bowels out of the way).*

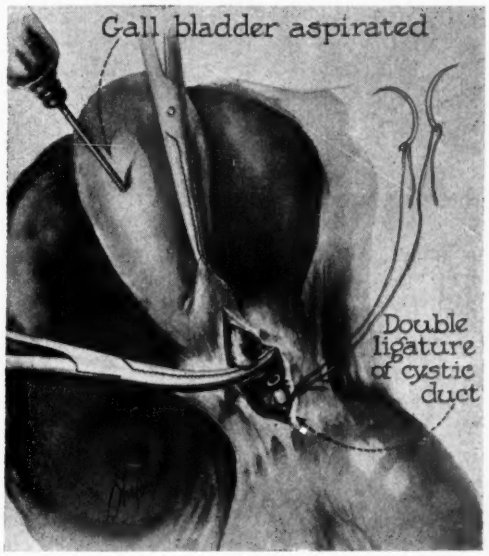

Fig. 3. After aspiration of the gall bladder the cystic duct and cystic artery are doubly ligated, the duct and artery divided and the ligature cut short.

Step 3. *Exploration of biliary passages.*—I cannot agree with some writers that opening of the common duct should be resorted to as a routine or that instrumental exploration of the common duct is free from danger. The gall bladder is aspirated. I use an especially designed aspirator which permits evacuation of the gall bladder contents into a receptacle via a rubber tube (Fig. 2). After aspiration of its contents, the gall bladder is filled with hexylresorcinol (S.T. 37) or some other antiseptic solution. Only about 5 per cent of bile contains micro-organisms, while their presence in the gall bladder wall may be demonstrated in over 70 per cent of cases. For that reason I introduce an antiseptic into the gall bladder before opening it. If the cystic duct is patent we probe the ducts;

*In some cases the falciform ligament was so small that it could not be utilized. In such instances I resected a segment of omentum and used it as described, instead of the falciform ligament. The results were excellent. One is tempted to use a segment of omentum (completely detached) routinely. It is simpler to perform.

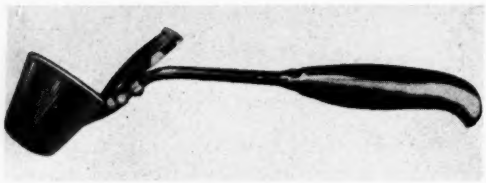

Fig. 4. Author's non-spillable bile receptacle.

otherwise digital exploration is resorted to. The extrahepatic biliary passages may be explored through the opened gall bladder. The cystic artery and duct are ligated doubly and jointly, cutting both ligatures short. Experience has taught me not to attempt extensive dissections in search for the cystic artery if it is not easily isolated, but to splint it with the ligature to the cystic duct. This advice should be followed particularly where there is much infiltration in and about the hepatoduodenal ligament. The frequently abnormal course of the artery should be kept in mind (Fig. 3).

Step 4. *Open the gall bladder and evacuate its contents.*—I have designed a gall bladder content receptacle which collects the evacuated material without spilling it (Fig. 4). Old-fashioned gall bladder spoons are too shallow and offer no protection against contamination from spilled contents. My instrument consists of a cone-shaped container measuring 2¼ in. in diameter and 2 in. in depth, mounted on a shaft of suitable size. A close-fitting cover is hinged and held open, when in use, by means of spring friction clips. Slight pressure upon the cover releases it so that the material cannot spill during its removal. The front part of the receptacle is somewhat concave, allowing sufficient latitude for proper contact with the subcholecystic structures, and its edges are rodded, thus avoiding injury to the liver.

Step 5. *Split the gall bladder* longitudinally from above downward with an ordinary pair of scissors. Grasp half of the gall bladder wall with an insulated angiotribe forceps or a rubber-covered ordinary artery forceps, of proper size and thickness. In closing the forceps, the gall bladder wall is crushed and the blood-vessels coursing in it closed by compression. With an ordinary pair of scissors remove the redundant portion of the gall bladder wall. Apply a small electrode firmly along the exposed margin of the gall bladder held in the forceps. The smaller the electrode, the quicker the action. The current will electrocoagulate the gall bladder wall in the grasp of the forceps. After sufficient coagulation, the forceps is opened; a compressed coagulated ribbon of tissue remains (Fig. 5a and b). Repeat the procedure on the other half of the gall bladder. Electrocoagulate the remaining portion of the posterior wall of the attached gall bladder, which has not yet been acted upon (Fig. 6).

In my early work I thought it advisable to electrocoagulate slowly but experience has taught me that quick decisive coagulation with firm electrode contact yielded the best results. I use a current of low voltage and high amperage on a rather small electrode. On this

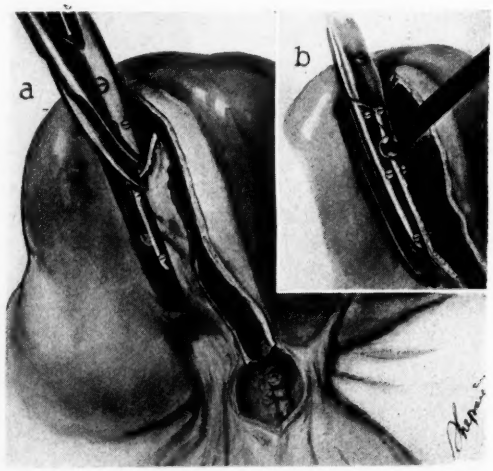

Fig. 5. (*a*) Opened gall bladder crushed with author's insulated angiotribe forceps and redundant portion of gall bladder removed with ordinary scissors. (*b*) Remaining strip of gall bladder in grasp of forceps being electrocoagulated with short-wave current. The current passes through the forceps but not beyond the insulated protector.

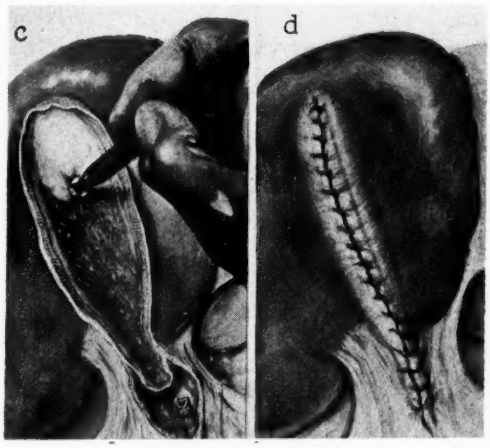

Fig. 6. (*c*) The insulated angiotribe forceps are removed leaving ribbon of crushed and electrocoagulated strip of gall bladder tissue all around gall bladder bed. The posterior wall of the gall bladder in the middle of this ring is being electrocoagulated. (*d*) Strip of electrocoagulated and crushed ring of tissue of gall bladder united with continuous catgut sutures.

unit (Fischer Model S.W. 12) as the voltage drops, the amperage increases; this affords prompt, thorough dehydration and a sharply defined line of demarcation between the coagulated and non-coagulated tissue. Tissue thus coagulated will retain less moisture than tissue coagulated more slowly and less heat is radiated to the contiguous structures. Another reason for substituting rapid coagulation with a smaller electrode is that slow coagulation results in heating of the tissues to quite an extent beyond the electrode, about 0.5 cm. to each millimeter. There is no sharp line of demarcation in slow coagulation; the tissue changes are gradual.

It must again be emphasized that the electrode must be applied snugly to avoid carbonization. The current should be turned on only after the electrode is firmly in contact with the tissues to be acted upon, and that fulguration and its attendant carbonization must be avoided because such carbonization will defeat the purpose of the operation.

When the steps of the operation are completed as here outlined, there will be present an area represented by the electrocoagulated posterior wall of the gall bladder attached to the gall bladder bed.

Step 6. *Approximate the electrocoagulated edges of the gall bladder* by a few interrupted or a continuous suture of fine catgut. While thus approximating the edges without strangulating them, the needle carrying the catgut must not penetrate the liver substance—only the edges of the coagulated ribbon are picked up (Fig. 6d).

Step 7. *The detached falciform ligament is now removed from the salt-solution container.*—One end of the ligament is sutured to the upper end of the united, coagulated gall bladder bed (Figs. 7 and 8). The lower third of the ligament is now stitched to the lowermost end of the approximated electrocoagulated surface and the free end of the ligament is placed, but not sutured, against the doubly ligated end of the cystic duct and artery. An effective serous covering is thus formed over the gall bladder bed and cystic duct. Two sutures are used as a rule, one above and one below.

Step 8. *The laparotomy packs and retractors are removed;* the field of operation is dried and the abdominal wall closed in the usual manner *without drainage.*

What becomes of the structures in the gall bladder bed after the operation described? The answer to this has been given based upon animal experiment. Recently a post-mortem examination was done on a patient who died of acute pulmonary tuberculosis on whom I performed this operation eighteen months before her last illness. Microscopic sections showed firm union of the ligament to the underlying liver, the cords of which appeared histologically normal.

CONCLUSIONS

1. A method of electrosurgical obliteration of the gall bladder is described

which when carefully followed may be used in simple and complicated cases of gall bladder disease without resorting to drainage. It reduces mortality to a minimum and cuts hospitilization. The much dreaded age factor in these operations loses its terror. Shock is usually absent.

2. Failures and fatalities in classic cholecystectomy after the operation are often due to bile leakage, as a result of an inability to obliterate and cover the gall bladder bed, which contains bile capillaries and often larger bile-ducts, in 15 to 25 per cent of the cases. Drains invite bile seepage. The method here described seals these openings by electrocoagulation. A sterile, hyaline, dry, protective layer is subsituted for a raw unprotected surface. The falciform ligament is superimposed over this area. Drainage is entirely omitted.

3. The operation here described must not be confused with Pribrams mucoclasis practised with the cautery or with "diatherm-fulguration" which aims at burning or carbonization of the mucous membrane of the gall bladder, or with so-called "electrical" or "electrocholecystectomy" where, instead of the scalpel, the diatherm cutting knife is used.

4. A prerequisite to the achievement of satisfactory results is a patent common duct. An occluded cystic duct from any cause is an indication for this operation.

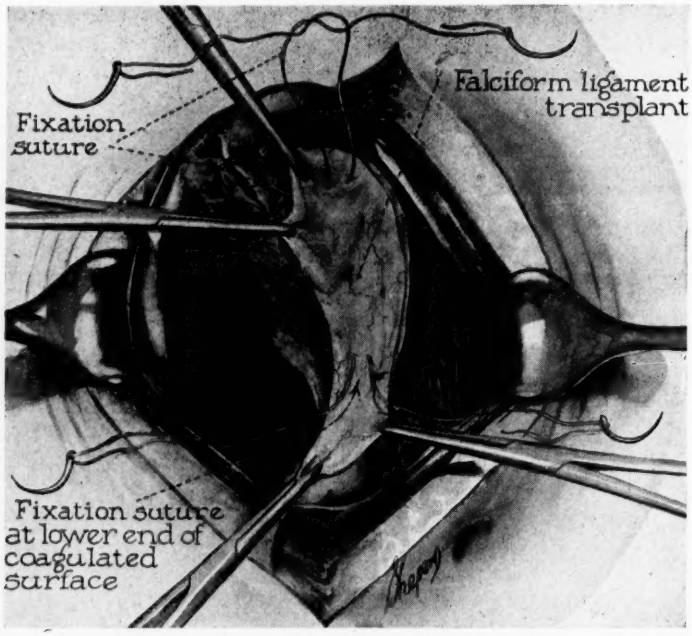

Fig. 7. Note borders of the electrocoagulated area approximated with fixation suture. Additional interrupted sutures of fine catgut approximate the borders of the electrocoagulated zone along its entire extent. The mobilised falciform ligament is fixed over the closed electrocoagulated surface. Note placement of sutures.

5. Experimental studies have shown that any method of carbonization, such as fulguration, Paquelin, and electrocauterization predisposes to hæmorrhage, thrombosis, and embolism. Such cauterization will not destroy pathogenic microorganisms in the depths of the affected gall bladder wall. The operation here described is free from these drawbacks and

effectually accomplishes destruction of the entire thickness of the gall bladder wall and, if indicated, also the gall bladder bed. The surgeon has under control the degree of penetration he wishes to accomplish. Whitaker (1935) states: "The method of Thorek emphasizing contact coagulation to considerable depth seems preferable to fulguration. . . . I am grateful to Thorek for the distinction and wish to emphasize the necessity for real contact coagulation. . . ."

6. The ligamentum falciforme hepatis or an omental segment is used as a free graft, its serous structure covers sutured or raw surfaces to great advantage, thus reinforcing and protecting the areas concerned against seepage and safeguarding the processes of repair.

7. Electrocoagulated areas of intra-abdominal organs tend to heal by encapsulation. They do not interfere with wound healing. On the contrary, they heal promptly when the wound is closed securely. Therefore drainage is not only undesirable but is distinctly deleterious. Many patients succumb because of drainage. It prolongs the healing process and predisposes to complications. The operation described eliminates the necessity of drainage and its unpleasant sequelæ.

8. The thesis here presented deals with diseases of the gall bladder. It must be stated, however, that where choledochostomy or hepaticostomy is indicated, these may be done, in conjunction with my procedure. Experimental studies showed that the implanted falciform ligament over the obliterated gall bladder bed forms sufficient protection and does not interfere with a Kehr, Orr or similar drainage-tube.

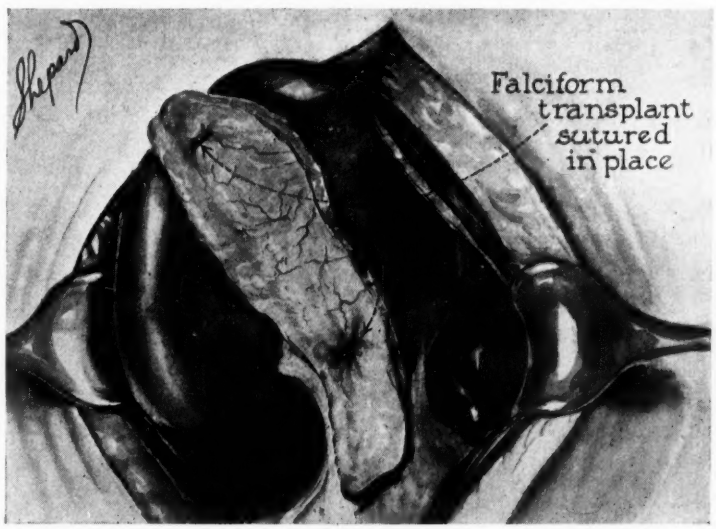

Fig. 8. Appearance of field of operation after completion of final stage.

9. Whereas the global mortality of removal of the gall bladder by the scalpel method in complicated cases still ranges around 10 per cent or more, the mortality in the series of 376 unselected cases here reported was about one-half of 1 per cent.

10. Electrosurgical cholecystectomy or electrocholecystectomy, so-called, is an entirely different procedure; it is nothing more than classical cholecystectomy in which the electric cutting knife is substituted for the scalpel. It has contributed

nothing to the improvement of the old method and has added the danger of explosion by sparking or fulguration. Drainage adds to its drawbacks.

11. A thorough understanding of the principles involved in this technique are essential to the successful performance of the operation here described. The tyro or the inexperienced cannot expect results obtained by serious workers. In speaking of electrosurgical resection of the prostate J. McCarthy recalls that it is not a "procedure for amateurs" or to be practised as "a hobby." The same applies to electrosurgical obliteration of the gall bladder. It exacts careful technique and meticulous attention to detail.

SUMMARY

Electrosurgical obliteration of the gall bladder may be used without drainage; it reduces mortality to a minimum (one-half of one per cent in the author's series) and shortens hospitalization. Shock is usually absent.

Bile seepage is prevented since the coagulation seals the openings of bile capillaries and ducts. A sterile, hyaline, dry protective layer is substituted for the raw surface left by classic cholecystectomy.

Electrocoagulation must not be confused with mucoclasis practised with the cautery or with "diatherm-fulguration" which aims at burning of carbonization of the mucous membrane of the gall bladder, or with so-called "electrical" or "electro-cholecystectomy" where, instead of the scalpel, the diatherm cutting knife is used.

In contrast to these methods, electrocoagulation does not predispose to hemorrhage, thrombosis, and embolism. It effectually accomplishes destruction of the entire thickness of the gall bladder wall and, if indicated, also the gall bladder bed. The degree of penetration is under the control of the surgeon.

The ligamentum falciforme hepatis is used as a free graft. Its serous structure covers sutured or raw surfaces to great advantage reinforcing and protecting the areas against seepage and safeguarding the processes of repair.

Electrocoagulated areas of intra-abdominal organs tend to heal by encapsulation. They heal promptly when the wound is closed securely. Drainage would be distinctly deleterious.

Where choledochostomy or hepaticostomy is indicated, they may be done in conjunction with the described procedure.

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RÉSUMÉ

L'oblitération électro-chirurgicale de la vésicule biliaire sans drainage, diminue la mortalité (un demi de un pour cent dans la série de 476 cas) et abrège le séjour à l'hôpital. Le choc ordinairement est nul.

Il n'y a aucun suintement, aucune transsudation, aucun écoulement de bile vu que les conduits et les capillaires biliaires sont scellés par la coagulation. Une couche stérile hyaline, sèche et substituée à la surface cruentée que crée ou laisse la cholécystectomie classique.

Il ne faut pas confondre électro-coagulation avec la mucoclasie qui est faite par le cautère ou avec la diathermie -fulguration dont le but est de bruler ou de carboniser la muqueuse de la vésicule biliaire. Il ne faut pas non plus confondre l'électro-coagulation avec l'électro-choléysctectomie pratiquée non avec le scalpel, mais avec le couteau diathermique.

L'électro-coagulation ne prédispose pas à l'hémorrhagie, à la trombose, à l'embolisme. Elle effectue la destruction de toute épaisseur de la paroi vésiculaire et aussi, quand il y a lieu, du lit de la vésicule. Le degré de pénétration est sous le contrôle de l'opérateur.

Le ligament falciforme hépatique est employé comme greffe. Sa structure séreuse couvre avantageusement les surfaces suturées ou cruentées et offre une protection contre le suintement biliaire. Il offre un abri au processus de cicatrisation.

Les surfaces électro-coagulées des organes abdominaux guérissent rapidement. Le drainage est nuisible. S'il est indiqué de pratiquer un abouchement du cholédoque ou de l'hépatique, la technique que décrit l'auteur peut être pratiquée avec avantage.

ZUSAMMENFASSUNG

Elektrochirurgische Veroedung der Gallenblase macht eine Drainierung ueberfluessig, reduziert die Sterblichkeit auf ein Minimum (½% in der 476 Faellen) und verkuerzt den Krankenhausaufenthalt. Shock fehlt gewoehnlich.

Dadurch, dass die Oeffnungen der Gallenkapillaren und Gallengaenge durch Koagulation verschlossen werden, wird das Nachsickern von Galle verhindert. An Stelle der bei der klassischen Cholecystektomie entstehenden rauhen Oberflaeche tritt eine sterile, hyaline trockene Schutzschicht.

Elektrokoagulation darf nicht verwechselt werden mit Schleimhautveraetzung durch Thermokauter oder mit "Diathermie-Verkohlung," welche die Abbrennung oder Verkohlung der Gallenblasenschleimhaut zum Ziele hat. Ebensowenig ist die hier angegebene Methode dem sogenannten "elektrischen" oder "Elektro-Cholecystektomie" Verfahren gleichzusetzen, bei dem lediglich anstatt des Messers der elektrische Funke zum Schneiden benutzt wird.

Elektrokoagulation fuehrt im Gegensatz zu diesen Methoden weder zu Blutungen, noch zur Thrombenbildung oder zur Entstehung von Emboli. Elektrokoagulation erzielt Zerstoerung aller Gallenblasenwandschichten und, wenn notwendig, auch des Gallenblasenbettes. Der Grad der Tiefenwirkung steht unter der Kontrolle des Operateurs.

Das Ligamentum falciforme wird als "freier" Transplantationslappen benutzt. Infolge seines seroesen Aufbaues kann es genaehte oder rauhe Oberflaechen aeusserst vorteilhaft als Verstaerkung bedecken, diese Flaechen gegen Nachsickern schutezen und den Heilungsprozess behueten.

Elektrokoagulierte Flaechen neigen zur Heilung durch Einkapselung. Sie heilen prompt, wenn die Wunde sicher geschlossen ist. Drainierung wuerde ausgesprochen schaedlich sein.

Wo Choledochostomie oder Hepaticostomie angezeigt ist, mag der Eingriff mit dem hier beschriebenen Verfahren kombiniert werden.

SUMARIO

La obliteración electroquirurgica de la vesícula biliar puede ser usada sin drenage, reduce la mortalidad al mínimo (medio por ciento en la serie de casos del autor) y disminuye la hospitalización y el shock está generalmente ausente.

Un conocimiento completo de los puntos principales de la tecnica son esenciales para el buen resultado de la operación descipta aquí. La tecnica cuidadosa y exacta, y una atención meticulosa en todos los detayes.

El derramen de bilis es prevenido desde que la coagulación sella la abertura de los capilares biliares y del conducto. Una superficie esteril, lisa, seca y capa protectiva es substituida por la superficie aspera que deja la colecistectomia clásica.

La electrocoagulacion no se debe de confundir con la mucoclasis practicada con el cauterio o con la "diatermia fulgurante" la cual tiende a la quemadura ó la carbonización de la membrana mucosa de la vesícula biliar, ó con el asillamado "electrical" ó "electro-colecistectomia" cuando en vez del bisturi, el bisturi diatermico cortante es usado.

En contraste con este metodo, electrocoagulación no predispone á hemorragia, tombosis, y embolismo. Este efectivamente produce destrupción completa del espesor de la pared de la vesícula biliar y, si indicado tambien el lecho de la vesícula biliar. El grado de penetración está bajo el control del cirujáno.

El ligamento falciforme hepático es usado como un colgajo líbre. Su estrutura serosa cubre superficias ásperas ó suturádas con una ventaja muy grande reenforzando y protegiendo las areas contra derrame y ayudando el proceso de reparación.

Areas electrocoaguladas de organos intra abdominales tienden a cicatrizar por encapsulación. Ellos cicatrizan prontamente cuando la herida es cerrada en firme. Drenage seria distintamente deleterio.

Donde coledocostomia ó hepaticostomia esta indicada, deben de hacerse en conjunción con el procedimiento decripto.

RIASSUNTO

L'obliterazione delle cistefellea per mezzo dell'elettrocoaugulazione non richiede dranaggio, riduce la mortalita' (nella propria serie l'autore ha avuto una mortalita' di ½%). La durata della degenza e' diminuita. Raramente si verifica shock.

E' necessario comprendere i principi fundamentarli della tecnica per ottenere buoni risultati dal metodo.

La secrezione di bile dai capillari biliari e' impedita. Uno strato sterile, ialino e' sostituito per la superficie cruenta della classica colecistectomia.

L'elettrocoaugulazione non deve essere confusa con la mucoclasi, ottenuta con la fulgurazione o cauterio che consegue la carbonizzazione della mucosa. Non deve essere confusa con la cosidetta elettrocolecistectomia, eseguita col bistori diatermico. In contrasto con questi metodi l'elettrocoaugulazione non predispone ad emorraggie secondarie, trombosi ed embolismo. Realizza la distruzione della parete della cistifellea e se indicata, anche del solco di attaccamento al fegato. Il grado di penetrazione e' controllabile dall'operatore.

Il ligamento falciforme e' usato per coprire la zona coagulata. L'ooposizione delle serose ha il vantaggio di rinforzare e proteggere l'area coaugulata e di accellerare il processo di riparazione.

Le zone elettrocoaugulata sono incapsulate. E' necessario pero' evitare drenaggi.

Quando lo coledocostomia o epaticastomia e' indicata puo' essere aggiunta al precedimento descritto.

SPLANCHNIC ANESTHESIA

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IT has been well stated that "The subject of surgery is as old as human needs." In like manner the demand for and development of anesthesia is historical.

It is not my purpose to go into the history of anesthesia and analgesia but rather to call attention to the fact that a constant search has been made and is still being made for the ideal anesthetic. An ideal anesthetic should be one which, of course, does not contribute to mortality. In the second place, it should not contribute to morbidity, and in the third place it should render the operative field as nearly perfect as possible for the surgeon.

Increased morbidity is frequently brought about by the use of improper anesthetics. For instance, the development of pneumonia, even though it may not be fatal, keeps the patient in the hospital an unusual length of time and leaves him in a convalescent state for many weeks longer than he would have been, had he not suffered from this complication. The nausea and vomiting frequently produce a weakened abdominal wall, if not a complete evisceration.

The inability of the surgeon to do good work on account of lack of relaxation under many of the general anesthetics in upper abdominal work contributes to morbidity in the form of post operative adhesions due to imperfect closure of the abdominal incision and to the rough handling of abdominal contents made necessary by the use of packs.

These are some of the factors that doubtless inspired the men of the generation preceding us, after the discovery of novacaine, to devise some method which would eliminate some of the distressing complications with which they were being constantly confronted.

It is becoming more and more generally conceded by open minded surgeons everywhere that a nerve block anesthetic or analgesic is the ideal agent to use, provided that this can be used safely and with comfort to the patient.

In all operations below the umbilicus, the spinal anesthetic is the ideal procedure, but when one goes above that line in patients over sixty years of age, the problem is never complicated.

Splanchnic anesthesia was first introduced by Kappis, Pauchet and Braun and to them we are deeply obligated. However, the popularizing of the procedure has been accomplished by Professor Hans Finsterer of Vienna, who uses it consistently in all upper abdominal operations. He is most enthusiastic about it and has no patience with, or charity for those who would condemn it.

One only needs to attend Professor Finsterer's clinic to become impressed with his method, and if one follows his work for a few months and studies his statistics, one is impressed with the honesty of his assertions and the value of the procedure.

The main objection to the use of the splanchnic anesthesia, as nearly as I can learn, has been that it is difficult and tiring to both the surgeon and the patient, but after one has used it a few dozen times, it becomes a fairly simple matter.

Kappis, early in his work, advocated the posterior method. As this is a blind injection, it leads to so many failures and is accompanied by so many dangers that, in my opinion, the transperitoneal

method is decidedly preferable. This method simply means the infiltration of the abdominal wall for the incision and then the careful infiltration and blocking back of the parietal peritoneal wall, after the abdomen is opened. This then is followed with an injection of the gastro hepatic ligament or lesser omentum, with a small amount of novacaine with a fine needle, and the stomach is gently pulled downward with the patient in a semi-sitting posture, reclined to an angle of about forty-five degrees, and with the assistant holding the stomach down with a flat retractor and the liver up with another flat retractor, pressure is made with the index finger of the left hand over the region of the celiac axis and anterior surface of the first or second lumbar vertebra where the abdominal aorta is felt pulsating and is gently pushed over to the left. The finger is then pressed down on the surface of the vertebra.

The point of injection now well determined by the index finger of the left hand, a long splanchnic needle is grasped with the right hand and is slid down along the index finger, using it as a guide and is inserted through the gastro hepatic ligament, or lesser omentum, on through the posterior peritoneum until the needle rests on the anterior surface of the vertebra between the abdominal aorta and the vena cava and in the region of the celiac plexus.

When one finds that the needle is resting firmly on the vertebra the guiding finger and hand are withdrawn, and from 75 to 100 cc. of one-half of one per cent novacaine solution is introduced, which immediately floods the retroperitoneal space and within three to five minutes, produces complete anesthesia of all the upper abdominal viscera, including the stomach, pancreas, liver, bile duct, transverse colon and spleen, and sometimes the entire intestinal tract.

If the needle punctures a blood vessel, as evidenced by the pressure of blood in the needle, it must be withdrawn and reinserted before making the injection. Finsterer warns against injecting at all under such circumstances but I have done so in at least five cases and there have been no ill results.

As is demonstrated in the movie film, which will be shown presently, complete and profound analgesia is the result.

The only pain that the patient suffers during the entire procedure is at the moment that the guiding finger presses down firmly upon the lesser omentum and this can largely be obviated by introducing novacaine by infiltrating this area before introducing the finger as heretofore described. There are no untoward symptoms. The patient does not complain of any discomforts, shortness of breath, feeling of weakness, etc., which are commonly complained of in spinal anesthesia.

The anesthetic lasts for three hours but if one prolongs his activity that long, it will probably be necessary to re-anestheticize the abdominal wall when ready to suture it.

With this upper abdominal area anesthetized it is possible to do any type of surgery necessary, namely: gastric resection, cholecystectomy, bile duct surgery, pancreatic surgery, or any surgery upon the transverse colon or spleen.

The convalescence following the use of splanchnic anesthesia is so different from that of other anesthetics where extensive upper abdominal surgery has been done, that it is indeed striking.

Complications are conspicuous through their absence. The patient remains comfortable and does not require the sedative ordinarily used. There is no nausea or vomiting, consequently there is no loss of body fluid. The eliminators of the skin are not disturbed, there is no shock, there are no pulmonary complications; in fact, it comes near being the ideal anesthetic.

Its use is particularly adaptable in debilitated individuals, where upper ab-

dominal surgery is necessary and where no other anesthetic can be tolerated.

I would not recommend, however, the use of it only when no other anesthetic can be used, because like every other agent that we possess, if we will be proficient in its use, it will be necessary for us to use it frequently and in cases that would probably get along without very much discomfort regardless of the type of anesthetic used. In other words, if one would be proficient in the use of splanchnic anesthesia he must use it frequently and master the technique.

In my comparatively small series of slightly over one hundred cases of splanchnic anesthesia, without an anesthetic death or a complication, I am so convinced of the virtue of it and its life saving quality, that I am a true missionary for it and I am firmly convinced that many patients' lives can be saved were it used that would be lost by the use of any other anesthetic.

The slides and moving pictures which will follow give a brief review of the anatomy of the sympathetic nervous system of the upper abdominal tract and demonstrate the technic of administration of splanchnic anesthesia.

The great splanchnic nerve is formed by branches from the sixth, seventh, eighth and ninth thoracic ganglia of the sympathetic trunk. It is about as thick as a match and runs down on the two sides of the vertebral column passing the diaphragm between the medial and intermedial crura on the right side with the azygos vein and on the left, with the hemiazygos vein. The nerve enters the abdomen at the height of the twelfth rib. After a short course it bends at an approximate right angle toward the midline, joins the upper end of the celiac plexus. The lesser splanchnic nerve originates by two branches from the tenth and eleventh thoracic ganglia. Its course is similar to that of the greater splanchnic but on a somewhat more dorsal plane. The two semilunar ganglia form the nucleus celiac plexus, the left situated to the left of the celiac axis and right between the vena cava and the left lobe of the liver and the head of the pancreas. The whole plexus forms a ring around the celiac axis. Each semilunar receives at its upper pole the greater splanchnic nerve, and at the lower border lying over the renal artery, the lesser splanchnic nerve enters.

The rami communicantes from the lumbar sympathetic trunk may enter the celiac but usually join the aortic plexus. This whole network of semilunar ganglia, splanchnic nerves and rami communicantes, with the abdominal branches of both vagi, form the celiac plexus. It is therefore seen to be formed from both sympathetic and para-sympathetic fibres. It has been shown that the vagi contains no fibres carrying pain sensation. It is known that the sympathetics do carry pain fibres. Whether the sensory fibers of the sympathetic system belong to the sympathetic system or are only carried in them has not been determined. The practical conclusion, however, is the same. The splanchnic nerves carry sensory fibres for a large group of abdominal organs and their block results in analgesia. It is not necessary here to go into the theories regarding pain in the abdominal viscera. It may be noted, however, that the most sensitive points are the mesentery, the lesser omentum, the gastric attachment of the greater omentum, the region of the cystic, hepatic and common ducts, the porta hepatis, the renal hylus and the larger vessels. Clinically, it is to be noted that splanchnic block results in perfect analgesia of the upper abdomen including the liver, spleen, stomach, duodenum, pancreas and transverse colon.

SUMMARY

The splanchnic nerves carry sensory fibres for a large group of abdominal organs and their block results in anal-

gesia. The most sensitive points in the abdominal viscera are the mesentery, the lesser omentum, the gastric attachment of the great omentum, the region of the cystic, hepatic, and common ducts, the porta hepatis, the renal hylus, and the larger vessels.

Clinically, it is to be noted that splanchnic block results in perfect analgesia of the upper abdomen, including the liver, spleen, stomach, duodenum, pancreas and transverse colon.

The transperitoneal method is preferred by the author and the technic is described. There is no shortness of breath, feeling of weakness, or other discomfort commonly complained of in spinal anesthesia. The anesthetic lasts for three hours; it may be necessary to re-anesthetize the abdominal wall before suturing.

Complications do not arise. The patient remains comfortable. No sedatives are required. There is no nausea or vomiting, no loss of body fluids, no pulmonary complications. The eliminators of the skin are not disturbed. Its use is particularly adaptable in debilitated individuals, where upper abdominal surgery is necessary and no other anesthesia can be tolerated.

The author recommends its more frequent use. In a series of 100 operations, there was no anesthetic death or complication.

ZUSAMMENFASSUNG

Die nervi splanchnici enhalten sensorische Fasern fuer eine grosse Zahl von Bauchhoehlenorganen und ihre Blockierung verursacht Analgesie. Die empfindlichsten Stellen der Eingeweide sind das Mesenterium, das kleine Netz, die Ansatzstellen des grossen Netes am Magen, die Gegend der Gallenausfuehrgaenge, die Vena porta, der Nierenhilus und die grossen Gefaesse.

Klinisch ist zu beobachten, dass nach Blockierung des Splanchnicus eine vollstaendige Analgesie der oberen Bauchgegend erfolgt, inclusive Leber, Magen, Duodenum, Pancreas und Colon transversum.

Der Autor bevorzugt die transperitoneale Methode und beschreibt ihre Technik. Kurzatmigkeit, Schwaechegefuehl und andere Unbehaglichkeiten, wie man sie allgemein bei spinaler Anaesthesie antrifft, sind nicht beobachtet worden. Die Anaesthesie dauert 3 Stunden, aber eine Reanaesthesia der Bauchwand ist erforderlich bevor Schliessung.

Es entstehen keine Komplikationen. Das Wohlbefinden des Patienten wird nicht beeintraechtigt. Unwohlsein, Erbrechen, Verlust von Koerperfluessigkeiten oder Lungenkomplikationen sind nicht beobachtet worden. Die Hautausscheidung wird nicht beeintraechtigt. Die Anwendung der Methode ist besonders geeignet bei schwaechlichen Individuen, die sich veiner Operation in der oberen Bauchhoehle unterzogen muessen und bei denen die Anwendung einer anderen Betaeubungsmethode nicht vertragen wird.

Der Autor emphielt eine haeufigere Anwendung des Verfahrens. In einer Serie von 100 Operationen unterlief kein Tod durch Anaesthesie oder andere Komplikationen.

RÉSUMÉ

Les nerfs splanchniques portent des fibers sensitifs pour une grande part des organes abdominales et l'analgésie parfaite résulte après leur blocage anesthésique. Les pointes sensitifs dans les viscères abdominales sont le mésentère, le petit épiploon, l'attachment gastrique du grand épiploon, la région des voies kystique, hépatique et common, la porta hepatis, la hylus rénale, et les grandes vaisseaux.

Le blocage splanchnique donne l'analgésie parfaite dans la partie supérieure du ventre comprenant le foie, la rate, l'estomac, le duodenum, le pancréas et le côlon transverse.

L'auteur préfère la méthode transpéri-

tonéal et la technique est décrite en détail. Il ne s'est pas produit des complications—le courte haleine, la sensation de la faiblesse ou les autres incommodités lesquels accompagnent la rachianesthésie.

Le malade est comfortable sans sédatifs. Il n'y a pas de nausée, vomissement, diminution des fluids du corps, choc, complications pulmonaires. Les fonctions de la peau ne sont pas dérangés.

Elle s'adopte bien aux besoins des malades débilités où le chirurgie de l'abdomen supérieur est nécessaire et l'autre anesthésie est contre-indiqué.

L'auteur recommande son usage plus fréquemment.

Sur ces 100 cas il n' y a pas eu de mort où des complications pouvant être mise en rélation avec l'anesthésie.

RIASSUNTO

I nervi splancnici contengono fibre sensorie per un largo gruppo di organi addominali ed il blocco risultante da infiltrazione produce analgesia in tutti gli organi splancnici. Le zone piu' sensitive dei visceri addominali sono i mesenteri, l'epiploon gastroepatico. La zona gastrica del grande epiploon, la regione dei dotti biliari extraepatici, la vena porta l'ilo renale ed i grandi vasi.

Clinicamente e' da notarsi che il blocco splancnico produce perfetta analgesia del fegato, milza, stomaco, duodeno, pancreas e colon transverso, il metodo transperitoneale e' preferito dall'autore e la tecnica e' ben descritta.

L'autore fa notare l'assenza di dispnea e di adinamia ed altri disturbi vasomotorii associati all'anestesia spinale.

L'anesthesia dura 3 ore, ma in alcuni casi e' necessario anestetizzare la parete addominale prima della sutura finale.

L'autore non ha notato complicazioni. I pazienti restano in stato di analgesia e non richiedono sedativi o ipnotica. Si e' notata assenza di nausea e vomito. Non si sono notate complicazioni polmonari.

L'autore raccomanda l'uso di questo metodo di anesthesia. In 100 casi non ha avuto a lamentare alcun decesso.

SUMARIO

Los nervios esplánicos llevan fibras sensorias para un gran numero de organos abdominales y su bloqueo resulta en analgesia. Los puntos mas sensitivos en las viceras abdominales son mesenterio, epiplón menor, la inserción gastrica del epiplón mayor, la region de los conductos cístico, hepático y comun, la porta hepática, el hilio renal, y los vasos mayores.

Clinicamente, hay que hacer notar que el bloqueo esplénico resulta en analgesia perfecta de las partes superiones del abdomen, incluyendo el hígado, bazo, estomago, duodeno, páncreas, y colon transverso.

El metodo transperitoneal es preferido por el autor y técnica decripta. No hay acortamiento de la respiración, sensación de debilidad, ú otras quejas de molestia comunmente presentes en la anestesia espinal. La anestesia dura por tres horas; pero puede ser necesario reanestesiar la pared abdominal antes de suturar.

Complicacines no se presentan. El paciente se sostiene cómodo. Los sedativos no se requieren. No hay nauseas ni vómitos, ninguna perdida de los fúidos del organismo, ningunas complicaciones pulmonares. Los eliminadores de la piel no estan perturbados. Sus usos son particularmente adaptable en individuos debilitados, donde cirugía de la parte superior del abdomen es necesaria y otra anestesia no puede ser tolerada.

El autor recomienda su us mas frecuente. En una serie de cien operaciones, no hubo muerte por anestesia ó complicaciones.

THE SURGICAL MANAGEMENT OF CATARACT*

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THE surgical management of cataract is probably one of the oldest operative procedures of which surgical history can boast. It is thought to have been practiced in India for more than two thousand years. However, at that time and up to the eighteenth century, the cataract was not removed from the eye but simply pushed to one side so that the light could enter the eye.

CAPSULOTOMY METHOD

In 1745, Daviel of Marseilles, France, performed the first cataract extraction ever described. It consisted of cutting the capsule and by means of a massage movement with a blunt instrument, the lens contents was milked out of the eye.

From that time to the present day the same type of extraction has been used. Soon after Daviel performed the first cataract extraction, Samuel Sharp removed the cataract in capsule by means of pressure applied to the eyeball.

INTRACAPSULAR METHOD

Smith, working in India some thirty years ago, enlarged upon the Samuel Sharp method of cataract extraction. Smith's method is the forerunner of our present forms of cataract surgery. It involved the removal of the cataract within the capsule which is accomplished by pressure applied to the eye at the limbus in the lower quadrant.

Wright, of Columbus, Ohio, was the first surgeon in America to perform the intracapsular cataract extraction by external pressure. This he described in 1884.

Vail of Cincinnati, Fisher of Chicago, and myself were among the earliest proponents of the Smith method in America.

The majority of the eye surgeons of the world were quick to see the disadvantages and slow or reluctant to recognize the advantages of the Smith method over that of Daviel; therefore, for several years the Smith operation was performed by only a few surgeons whose dexterity seemed to overcome the complications marking its disadvantage.

Hence the Daviel operation, better known as the extracapsular method, was performed by most surgeons while the Smith method was employed by the very few. So strong was the feeling between the two groups that those doing the extracapsular extraction were sometimes referred to as "Conservatives," while those performing the intracapsular were known as the "Radicals." This tension among the eye surgeons, however, was doomed to be shortlived.

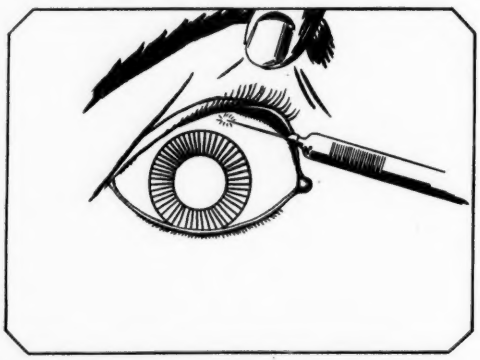

Fig. 1. Subconjunctival injections of one per cent solution of novocain at the attachment of the superior rectus muscle.

It was recognized that some other form of force should be applied to the lens in order that it could be extracted in such a manner as to lessen or entirely eliminate

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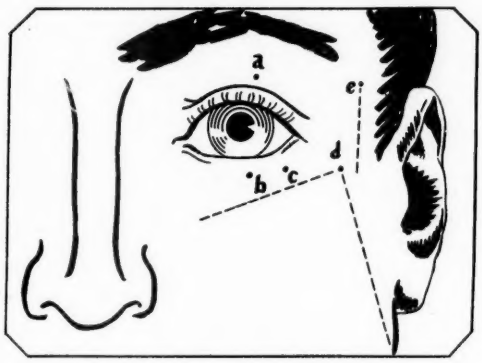

Fig. 2. Van Lint method of akinesia.

the distressing complications which were common to both methods.

TRACTION METHODS

Kalt and others working in Europe brought out a forceps for the purpose of applying traction to the lens capsule.

Hulen of San Francisco, in 1919, described a new method of extraction by vacuum which was applied to the lens by means of a suction tip. Barraquer of Barcelona, in 1917, described his technic of vacuum cup extraction and reported a thousand cases. His apparatus was well perfected and his results most excellent.

COMBINED METHOD OF TRACTION AND EXPRESSION

It was soon discovered, however, that the traction method alone was too severe on the lens in that a large percentage of capsules were broken. It, therefore, became necessary to revert back to the external pressure method so well used by Smith. This, however, was used only as an aid to traction and the combination of traction and expression have proven to be the best method thus far conceived.

Traction, either by forceps or vacuum cup along with expression, has become the basis of our modern cataract surgery.

It has been my good fortune to have had a chance to study all forms of cataract extraction during a wide experience with many hundreds of cases in the clinic at Shikarpur, Sind, India, and in my own clinic in Chicago, during which time I have developed my own technic which I will describe.

TECHNIC

Dilatation of the Pupil:

The pupil is dilated with an ointment of cocain, five per cent and euphthalmine, five percent, placed in the eye every half hour for two or three hours before operation.

Anesthetic:

Instillation of a five per cent solution of cocain every five minutes for four instillations. Injection of a one per cent solution of novocain at the attachment of the superior rectus muscle.

Akinesia:

Injection of ten to fifteen cc. of a one per cent novocain solution along the trunk and branches of the seventh nerve.

Retrobulbar Injection:

One or two cc. of a one per cent solution of novocain is injected adjacent to the ciliary ganglion by passing the needle through the lower lid.

Incision and Conjunctival Flap:

An incision is made involving about 170 degrees of the upper portion of the circumference of the limbus, its position being about 2 mm. behind the limbus and picking up a conjunctival flap extending beyond the incision about 2 mm. This is

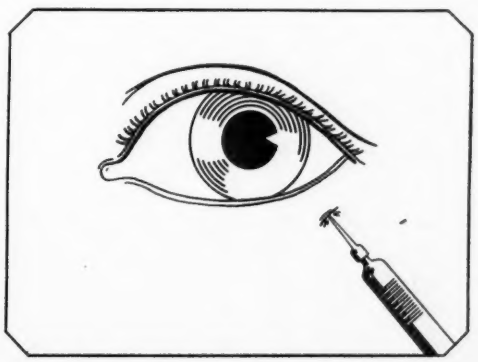

Fig. 3. Retrobulbar injection of one per cent solution of novocain to block the ciliary ganglion.

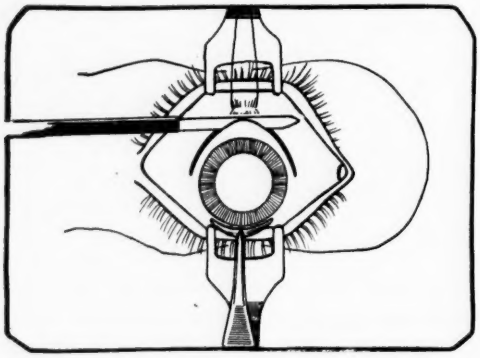

Fig. 4. Incision including a full conjunctival flap.

a difficult task, easier in protruding eyes than in deep-seated ones. A little practice, however, will enable the surgeon to succeed in cutting out a flap large enough to completely cover the scleral incision and furnish a good edge so that a semi-purse-string suture can be properly placed.

Iridectomy and Iridotomy:

If the pupil is rigid or if it has not dilated sufficiently to allow a safe passage of the lens during the extraction, a complete iridectomy is performed. If the pupil has dilated well or if the iris is quite flaccid, it is my custom to perform a peripheral iridotomy only. This is done by using the De Wecker scissors as described by Elschnig of Prague.

Placing the Suture:

At this stage it is best to place the semi-purse-string suture, leaving the loops quite large so that no interference to the passage of the lens will be encountered. The ends of the suture are left long and lay upon the operating cloth so that they can be readily picked up when necessary. The advantages of this type of suture are: (1) the wound can be quickly closed by simply pulling on the ends of the suture; (2) the whole edge of the conjunctival flap is evenly and quickly closed; (3) it holds the flap in good apposition; (4) it requires no tying; (5) there are no knots under the lids, therefore the suture is not uncomfortable; (6) it is very easy to remove.

Lens Delivery:

My preference is the use of the vacuum cup with which traction can be employed aided by counter pressure with the utility forceps on the lower limbus to accomplish expression. This is perhaps the most tedious and difficult step in the operation in that it requires skill and dexterity, acquired only by much practice, keen observation and good surgical judgment.

If a complete iridectomy has been performed, it is my custom to remove the lens, after breaking the zonula, by simply sliding it through the coloboma in the iris in an upright position. In case, however, the pupil is intact and there has or has not been an iridotomy performed, it is a safer procedure to "tumble" the lens by rotating the cup in such a manner as to cause the lens to turn so that the lower edge is brought out through the wound first.

By tumbling the lens one overcomes the disadvantage encountered by the formation of a vacuum behind the lens which is unavoidable if an attempt is made to lift the lens directly from its fossa in the vitreous body.

Broken Capsule:

The more proficient the surgeon becomes in the employment of the technic

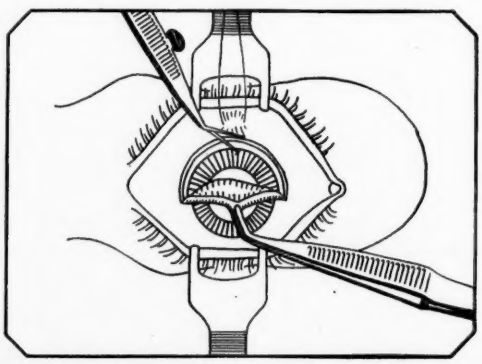

Fig. 5. Iridotomy using the De Wecker scissors according to Elschnig.

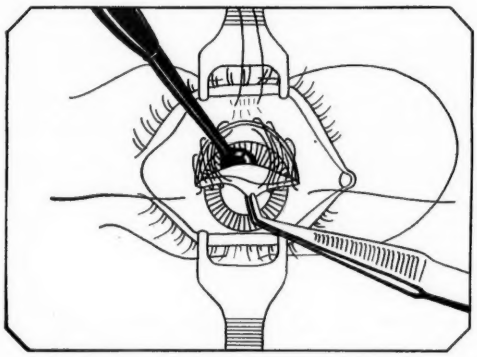

Fig. 6. Application of vacuum cup to anterior surface of lens.

of lens extraction, the fewer capsules will be broken, but a small percentage of lenses is broken in those instances where a capsule is so weak, or the zonula so strong that the capsule will unavoidably break and the results will be the removal of the sclerotic nucleus only. When such a complication occurs, the anterior chamber should be irrigated to remove the cortex and the remaining capsule gently removed with a toothless capsule forceps. The irrigation and the removal of the capsule is best accomplished under the fluorescent producing long-wave ultraviolet ray produced by the Hildreth lamp. This enables the surgeon to see the remaining lens cortex which would be invisible without the aid of the ultraviolet ray.

Wound Closure:

If the lens has been removed in capsule or if the capsule has been broken and the lens content and capsule have been removed, the wound is closed by making gentle traction at either end of the semi-purse-string suture until all of the loops have been drawn out.

Toilet:

If the iris has returned to its proper position in the anterior chamber, it will not be necessary to attempt the use of the spatula; however, if it has not returned to its proper position, or in case an iridectomy has been performed and the pillars of the coloboma are not in proper place, it will be necessary to smooth out the iris by means of a very narrow-bladed spatula.

Eserin:

A one per cent ointment of eserin is instilled into the conjunctival sac in order to produce a contraction of the pupil or the sphincter fibers in case an iridectomy has been performed in order to pull the iris away from the wound for several hours to avoid adhesion of the iris to the wound edge.

Lid Suture:

The lids are now closed and lid suture which was placed in before the operation was begun, are now tied.

Patches:

Both eyes are now covered with a gauze patch cut to fit snugly over both eyes. This is secured by means of adhesive tape.

The patient is placed in bed for thirty hours, and with the aid of a nurse, allowed to turn from side to side, if he so desires. The lid suture is removed in twenty-four hours and the unoperated eye left open. The patient may sit up after thirty hours and be allowed to walk to the toilet within twenty-four hours.

Results:

Fewer capsules will be broken by the use of the vacuum method than in any

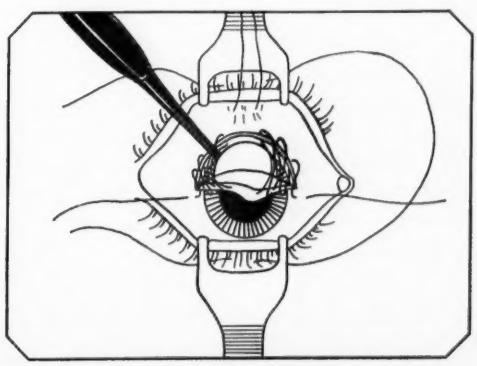

Fig. 7. Removal of lens by "tumbling" method.

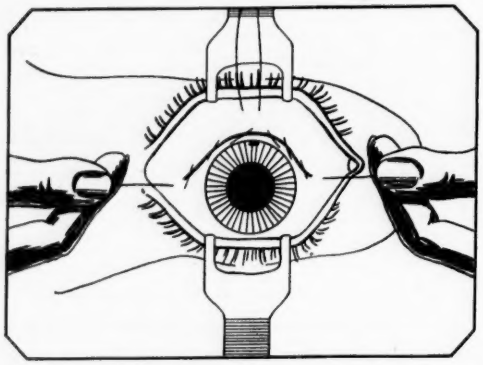

Fig. 8. Wound closure by purse-string suture.

other method thus far devised, which means fewer cases of postoperative endophthalmitis.

RÉSUMÉ

Il importe d'avoir une bonne anesthésie. Le blocage du ganglion ciliaire procure une meilleure anesthésie et abaisse la tension intra-oculaire.

L'auteur préconise une incision fournissant un lambeau conjonctival pour l'insertion d'une suture à demi cordon de bourse. Cette suture assure une guérison sure et rapide de la plaie.

Ablation du cristallin avec tasse à vide dans la position droite dans les cas d'iridectomie complète; dans la position renversée dans les cas d'iridotomie.

Il faut combiner l'expression à la traction.

Fermeture de la plaie par traction sur les deux bouts de la suture "demi cordon de bourse."

Emploi d'un onguent à l'ésérine à un pour cent après fermeture de la plaie.

ZUSAMMENFASSUNG

1. Erzielung einer guten Anaesthesie ist ausserordentlich wichtig. Durch Ausschaltung des ganglion ciliare erzielt man bessere Anaesthesie und vermindert gleichzeitig den intraoculaeren Druck.

2. Einschnitt zur Bildung eines kompletten Bindehautlappens fuer eine Semi-Tabaksbeutelnaht, die eine schnelleren und sichereren Wundverschluss gewaehrleistet.

3. Entfernung der Linse mittels des Vacuum-Bechers, in senkrechter Lage im Falle einer kompletten Iridektomie, oder im Falle einer Iridotomie durch "Herausbalanzieren."

4. Die besten Resultate erzielt man durch Kombination von Expressionsund Traktionsmethode.

5. Wundverschluss durch Zug an beiden Enden der Semi-Tabaksbeutelnaht.

6. 1% Eserinsalbe nach Wundverschluss.

SUMARIO

Es muy importante adquirir el mayor grado posible de anestesia. El bloqueo del ganglio ciliar produse la mejor anestesia y tambien baja la presión intraocular.

Los puntos siguientes de la tecnica del autor los cuales se subrayan son:

Una incisión con un colgajo conjuntival completo para colocarle una sutura de media bolsa de señora, una sutura que asegure un cierre rápido y seguro de la herida.

La extracción del lente ó cristalino con un instrumento de absorción en la posición vertical en caso de iridectomia completa, ó por deslizamiento en caso de una iridotomia.

El uso de expresión en combinación con tracción.

Cierre de la herida con tracción en los des extremos de la suturs de media bolsa de señora.

El uso del unguento de eserina, al uno por ciento, despues que la herida este cerrada.

RIASSUNTO

E' essenziale assicurarsi perfetta anestesia. Il blocco del ganglio ciliare produce migliore anesthesia ed abassa la tensione intraoculare.

Punti salienti della tecnica dell'autore sono i seguenti:

Incisione con lembo congiuntivale della sutura a semiborsa, sutura che assicura la rapida e perfetta approssimazione della ferita.

Estrazione del cristallino con l'aspiratore a vacuo perpendicularmente nel caso di iridectomio e per voglimento nel caso di iridotomia.

L'uso di espressione associata alla trazione, chiusura della ferita con la sutura descritta.

Uso di unguento di eserina al 1/100.

STUDY OF UTERINE BLEEDERS*

ENDOMETRIAL BIOPSIES

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TO take up the study of uterine bleeders is rather an all inclusive one. As it is such a broad subject and because of the anxiety which it affords both patient and physician I feel that more time should be devoted to it.

A prolonged or profuse menstrual flow is the most common symptom found with endometrial myomata. Schmitz (1) found these more frequently occurred after the age of 36, and 50 per cent of the myomata were accompanied by bleeding. Interference with normal contractility of the uterus accounts for a great many of these cases.

In a study of vaginal hemorrhage in the pre-menopausal age of 1,398 cases, Keene (2) found there was malignancy in 14 per cent. Of these cases of malignant bleeding about 75 per cent proved to be due to cervical carcinoma. More than 60 per cent of all cases of functional bleeding occur in the pre-menopausal age at which time there is a gradual recession of ovarian function.

On examination of sections of the ovary and of endometrial scrapings there is a characteristic pathology found in these functional bleeding cases. Usually there is a definite correlation in the microscopic pictures of these tissues; this was first noted by Robert Shroeder (3).

The ovary shows a persistence of graafian follicles with follicular cysts which may at times be of a rather large size.

Robert Meyer (4) observed granulosa cell tumors in 27 out of 33 cases which he reported. In 27 cases of bleeding associated with granulosa cell tumors Meyer noticed hyperplasia of the endometrium and hypertrophy of the uterus in all cases. He concluded that these changes are produced by increased follicular hormone from the pathologic granulosa cell growth.

On careful examination many of these cases show a stigmata of endocrinopathy such as abnormal secondary sex characteristics or faulty stature and fat distribution. More frequently these findings are associated with amenorrhea. An enlarged thyroid may be found with a hypothyroidism instead of a hyperthyroidism.

The ovaries receive a stimulus in the form of gonadotropic hormone which is the product of the basophilic cells of the anterior pituitary gland. Estrin is formed

*Presented before the Southern Assembly of the International College of Surgeons, Tampa Municipal hospital, Tampa, Florida, February 28, 1938.

in even greater amounts than before and a second female sex hormone is elaborated after extrusion of the egg which occurs about the 14th day of the cycle.

The work of Smith and Engle (5), Moore and Hisaw (6) and co-workers proved that the secretory activity of the anterior pituitary is inhibited by estrin at the height of its production.

Generally speaking, any period lasting more than eight days is abnormal and a blood loss sufficient to cause a secondary anemia is to be regarded as pathologic.

There is one type of bleeding which usually means a particular lesion in cases of postmenopausal bleeding with granulosa tumor of the ovary; this may be benign or malignant.

Not including obstetrical bleeding uterine bleeders may be divided into two large groups, (a) organic and (b) functional. The principal organic causes are:

Uterine fibromyomata, adnexitis, ovarian cyst, cervical and uterine polyps, cancer of the cervix, cancer and sarcoma of the uterus, uterine retrodisplacement, endometriosis, erosion and endocervicitis, sloughing or subinvolution subsequent to cautery or surgical diathermy of the cervix, fibroid uterus, chronic endometritis, hyperplasia of the endometrium, pelvic tuberculosis, tuberculosis of the cervix, syphilis, purpura hemorrhagica and hypertension.

The above is a rather long list but that only accounts for 50 per cent of the cases, the remaining 50 per cent having to be classified as functional.

By the use of the endometrial suction curet or forcep such as used by Novak or Burch we are able to obtain endometrial tissue which can be submitted to the pathologist for study which can give us a good deal of information as to just what is taking place, not only in the uterine cavity but the activity of the endocrines such as those of the pituitary and the ovaries.

The biologic test for the female sex hormone was established by Allen and Doisy (7); the prepituitary hormone by Aschheim and Zondek (8).

If it were possible to produce menstruation by the use of hormone preparations in all cases, it is questionable whether the constant injections necessary are justifiable. We at times find amenorrhea to be due to asthenia, hypothyroidism or obesity.

In a study made by Pemberton (9) of 596 cases which were treated in the Free Hospital for women in whom he found abnormal bleeding as one of their complaints, 293 or slightly less than 50 per cent were seen to have benign lesions at the first operation.

Six of these 293 were actually cases of carcinoma, reducing the percentage of non-malignancy to 48 per cent.

No uterine bleeding should be attributed to the menopause until it is a known fact that there is not a cancer back of it even though endocrine disturbances of one kind or another, such as dysfunction or malfunction or disharmonious action, play the chief role in troublesome uterine bleeding.

CANCER CAN BE EXCLUDED ONLY BY THE MICROSCOPE

All cases of unknown bleeding should be considered cancer until proven otherwise.

There is only one normal physiologic hemorrhage that occurs in the human being and that is menstruation. Since this is true the laity is prone to attribute any bleeding, be it profuse, scanty, regular or irregular, to a perversion of a normal function.

Curtis (10) has given the following classifications of uterine bleeding:

(1) Bleeding that results from pregnancy.
(2) Benign tumors of the uterus.
(3) Malignant tumors of the uterus.
(4) Functional bleeding.
(5) Other causes.

As a rule the most outstanding

symptom of pelvic diseases is bleeding and often the longest neglected.

The uterus has a well arranged irrigation system designed to meet the needs of this highly organized muscular organ under varying conditions and especially to maintain the fertility of the mucosa. If it were not for the flushing of the system the impregnated ova would be starved trying to plant and dig themselves in on what would otherwise be a comparatively avascular endometrium.

The well established clinicopathologic entity of endometrial hyperplasia may also properly be grouped under uterine bleeding. A fibrotic uterus is like an old piece of elastic which has lost its power to "snap back." When menstruating its cavity is expanded and the cervical canal is more patent.

The ovarian follicle was found by Zondek to work in the corpus luteum shortly before menstruation.

While prolan and anterior pituitary transplants have about the same qualitative effect on ovaries of immature animals, Evans and his co-workers (11) have shown that they are dissimilar in that prolan (the material in pregnancy urine) is embarrassed in its action on the hypophysectomized animal and is limited in the effect it can produce in the normal infantile animal.

Zondek gave the name of prolan (antophysin, antuitrin S, follutein) to a hormone found in the anterior pituitary and in the urine of pregnant women that will cause luteinization in the ovaries of infant mice.

Prolan is divided into two parts, prolan A and prolan B.

Prolan A is believed to stimulate follicle ripening luteinization and prolan B to cause activation of the ovary.

The prolan is responsible for the reaction in the ovaries known as the Aschheim-Zondek test.

If there is a lack of corpora lutea it means there is a lack of progestin or corpus luteum hormone and therefore an absence of a proper premenstrual endometrium, the menstrual cycle is incomplete and when bleeding takes place it is certainly not a normal menstruation.

In the study of benign uterine hemorrhage they are divided into three classes according to the ages of the patient:

(a) The hemorrhage of adolescence and of young women.

(b) The hemorrhage of middle life and of the menopause.

(c) The hemorrhage occurring after the menopause.

Cullen (12) gives us the following classifications as to causes of bleeding:

(A) Those dependent upon recent pregnancy.

1. Retained products of gestation.
2. Ectopic gestation.

(B) Those not dependent upon recent pregnancy.

1. Functional hemorrhage, hyperplasia of the endometrium.
2. Pelvic infection.
3. New growths:

(a) Benign (fibromyomata, adenomyoma, endometrioma, polyps).

(b) Malignant (carcinoma, sarcoma).

The frequency of uterine bleeding in women under thirty-five years of age which are of benign origin fall into two general groups:

(1) Those associated with recent pregnancy, and (2) those dependent on pregnancy.

In the former we find:

(1) Retained fetal membranes, (2) hydatidiform mole, (3) tubal pregnancy, (4) pregnancy in one horn of a bicornute uterus.

In the latter group we find:

(1) Hemorrhage due to hormonal imbalance such as endometrial hyperplasia, irregular shedding of the endometrium and irregular ripening of the endometrium.

(2) Polypoid changes of the fundal or cervical mucosa, (3) myoma or adenomyoma uteri, (4) adnexal disease.

In the study of these clinically, there are those who state they had a slight discharge about one week after the termination of the regular period and lasting two or three days.

It is probable that many patients who complain of their menses occurring every two weeks also belong to "ovulation bleeding," that is having some flow when ovulation takes place about the middle of the menstrual cycle.

The amenorrhea such as seen with pregnancy and with the other types are associated often, due to the persistence of a corpus luteum. Menstruation has frequently been observed to start early following operative removal of an active corpus luteum.

In cases where ovulation does not take place the graafian follicle persists and no corpus luteum (granulosum) is formed.

After a study made by Graves (13), he came to the following conclusions:

(1) Metrorrhagia is associated with complete absence or marked defectiveness of the corpus luteum.

(2) The bleeding of metrorrhagia is the result of localized necroses in the dysplastic endometrium.

(3) Typical dysfunctional metrorrhagia is almost constantly associated with endometrial dysplasia.

(4) Endometrial dysplasia is produced by the abnormal continuation of the unantagonized follicle hormone and is constantly associated with follicular cystosis.

(5) In periodic dysfunctional bleeding both the follicle and corpus luteum hormones are present, but in a state of physiologic imbalance.

(6) The bleeding of fibroid tumors is dysfunctional in nature and is morphologically and physiologically identical with that of nonfibroid uteri.

(7) The specificity of the corpus luteum hormone in contrast to that of the follicle has been confirmed by Smith, first, by a repetition of Corner's (14) work and secondly, by the discovery of distinctive reactions in the blood chemistry of experimental animals under various sexual conditions.

For decades the physiology of the uterus was thought to be that of menstruation; however, present day conception of the purpose of the uterus and the remaining pelvic organs is reproduction.

There are two changes which take place to complete the female reproductive cycle:

(1) Those occurring in the endocrine glands and (2) those occurring in the uterus (endometrium).

The anterior lobe hormones responsible for this are known as:

(1) The follicle stimulating hormone or factor (prolan A) and (2) the luteinizing hormone or factor (prolan B).

The follicle stimulating factor or hormone causes the primordial follicle of the ovary to develop into a mature graafian follicle which discharges its ovum on or about the 14th day of the cycle. While the ovary in turn elaborates its own hormones: (1) theelin (follicular hormone, estrin, etc.) which causes the endometrium to grow or proliferate, and (2) progestin (progesteron corpus luteum hormone) which causes the endometrial glands to secrete and transform the endometrial connective tissue (stroma) into decidua like cells.

As the ovarian hormones recede, the endometrium degenerates and is desquamated (menstruation), accompanied by the characteristic menstrual discharge of endometrial fragments and blood.

Most Endocrinologists regard menstruation as a pure "hormone withdrawal" phenomenon; however, others explain it on the basis of a "menstruation hormone," still others have sought some hormonal activity on the part of the dying ovum itself.

The endometrial changes occurring in the reproductive cycle may be divided into four main phases:

(1) Postmenstrual phase is the phase

of regeneration or repair in which the endometrial lining of the uterine cavity is replaced after menstruation. The repair process begin immediately after the beginning of menstruation and may continue throughout the flow and be nearly complete when the flow ceases about the fifth day.

(2) The early proliferation stage merges with the preceding and consists essentially of growth of the endometrium. Its consistent elements increase in size and in number. In increasing in length the glands maintain their characteristic tubular form. Nuclei in the glandular epithelium and in the stroma show signs of this growth process in the appearance of mitotic figures.

(3) The late proliferation stage is characterized by even more noticeable growth of the endometrium, both in size and number of its constituent elements. The tubular glands lengthen even more and become convoluted and tortuous.

This phase (presecretory) terminates at or about the 21st day of the cycle.

(4) The pregravid stage has two characteristics:

1. The glands take on a cork-screw appearance and are in a state of active secretion, discharging their secretions into their lumina.

2. The upper layer of the endometrium becomes extremely dense, due to the formation of decidua like cells.

Amenorrhea can be primary or due to ovarian deficiency. Quantitative or qualitative changes in the anterior lobe or ovarian hormones may easily change the menstrual rhythm, as well as the amount of flow.

Hyperplasia of the endometrium which is recognized as the Swiss Cheese pattern (Novak) (15) is a typical example. It represents excessive theelin stimulation of the endometrium and deficient corpus luteum activity.

To carry on this study by considering endometrial tissues these cases add a very great deal of information and interest. These endometrial biopsies can be taken at frequent intervals, weekly, or even daily if you choose, so as to study every step of the development of the endometrium, without giving the patient an anaesthetic and can be an office procedure. This not only enables us to know more definitely the process that is going on in the endometrium in its development or retrogression but also enables us to get tissues for study to determine as to whether there is a cancer of the fundus present.

By this study we are able to know to a certain degree the activity of the pituitary glands, if it is putting out prolan A and B, giving a stimulation to the ovaries which aids in the development of the follicle or the corpus luteum, and then in turn show to some degree the action of ovarian hormone on the endometrium.

It is rather interesting to study these endometrial tissues after the administration of pituitary and ovarian substances to see what stimulation is going on.

CONCLUSIONS

(1) Most cases of persistent uterine bleeding in which we are unable to find pathologic causative factors we should reject as menopause or non-malignant until we have got microscopic study of the endometrial tissue.

(2) Many cases of bleeding which come about the middle of the menstrual period might be classed as the "ovulation bleeding" or that occurring at the time ovulation takes place.

(3) Prolan is responsible for the reaction in the ovaries known as the Aschheim-Zondek test. The lack of corpora lutea means a lack of progestin or corpus luteum hormone and therefore an absence of a proper premenstrual endometrium.

(4) Prolan (Antophysin, Antuitrin S, Follutein) is the name given by Zondek to a hormone found in the anterior

pituitary and in the urine of pregnant women that will cause luteinization in the ovaries of infant mice.

(5) Prolan is divided into two parts, Prolan A and Prolan B. Prolan A is believed to stimulate follicle ripening in the ovary and Prolan B to cause luteinization in the ovary.

(6) In the past the physiology of the uterus was thought to be that of menstruation; the present day conception of the purpose of the uterus and the remaining pelvic organs is that of reproduction.

(7) For the purpose of description the endometrial changes occurring during the reproductive cycle may be divided into four main phases:

(1) Postmenstrual phase or that of regeneration or repair after menstruation.

(2) The early proliferation stage which is the growth of the endometrium.

(3) The late proliferation stage which is a more marked growth, both in size and number of the constituent elements.

(4) The pregravid stage in which the glands take on a cork-screw appearance and are in a state of active secretion and where the endometrium becomes extremely dense due to the formation of decidua like cells.

(8) Before beginning a long course of treatment by the hormone substances for uterine bleeding endometrial biopsies should be made.

(9) The study of endometrium tissue which may be obtained by the suction curet, such as used by Novak or the biting curet by Burch, gives a very great deal of information as to the endometrial development and also aids in diagnosing cancer in the fundus.

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SUMMARY

Causes of uterine bleeding, organic and functional, are discussed, and the physiology of the uterus is studied as a cycle of reproduction rather than as the physiology of menstruation.

During the reproductive cycle changes occur in the endocrine glands and in the endometrium. The anterior lobe hormones responsible for these changes are known as the follicle stimulating hormone or factor, prolan A, and the luteinizing hormone or factor prolan B.

Many cases of bleeding which come about the middle of the menstrual period may be classed as "ovulation bleeding," occurring when ovulation takes place.

The endometrial changes occurring during the reproductive cycle are divided into four main phases: (1) Post menstrual phase or that of regeneration or repair after menstruation. (2) The early proliferation stage which is the growth of the endometrium. (3) The late proliferation stage which is a more marked growth, both in size and number of its constituent elements. (4) The pregravid stage in which the glands take on a corkscrew appearance and are in a state of active secretion and where the endometrium becomes extremely dense due to the formation of decidua like cells.

RÉSUMÉ

L'auteur discute les causes prédisposantes et excitantes des hémorrhagies utérines et étudie la physiologie de l'utérus comme cycle de réproduction.

Durant ce cycle, il s'opère des changements dans les glandes endocrines et dans l'endomètre. Les hormones du lobe antérieur responsables pour ces changements sont connus comme facteur follicule excitant, prolan A, beaucoup d'hémorrhagies survenant vers le milieu de la période menstruelle peuvent être désignées "hémorrhagies de l'ovulation."

Les changements de l'endomètre qui ont lieu pendant le cycle reproductif se présentent sous quatre phases: (1) Phase post-menstruelle, ou de régéneration et de réparation. (2) Période de prolifération ou de croissance de l'endométre. (3) Prolifération tardive, croissance plus active dans le nombre et les dimensions des éléments endo-métriaux. (4) Phase prégravide. Les glandes utérines présentent une apparence de tirebouchon, sécrètent activement et l'endomètre devient extrêmement dense.

Avant d'instituer un long traitement d'hormonique pour les hémorrhagies utérines dont on n'a pas établi la cause, il importe de faire une biopsie de l'endomètre. L'étude de tissu endométrial obtenu par la curette aspiratrice de Novak ou par la curette morcellante de Burch fournit des renseignements utiles sur l'état de l'endomètre et aussi nous aide à établir ou à infirmer le diagnostic de cancer de l'uterus.

ZUSAMMENFASSUNG

Die Ursachen der uterinen Blutungen organischer und funktioneller Herkunft, werden besprochen. Die Physiologie des Uterus wird behandelt unter dem Gesichtspunkt des Reproduktionszyklus.

Waehrend dieses reproduktiven Zyklus treten Veraenderungen in den endokrinen Druesen und im Endometrium auf. Die fuer diese Veraenderungen verantwortlichen Vorderlappenhormone sind bekannt als das follikelstimulierende Hormon oder Faktor Prolan A und als das Luteinisierungshormon oder Faktor Prolan B.

Zahlreiche Blutungen, die waehrend der Mitte der intermenstruellen Periode auftreten, koennen als "Ovulationsblutung" klassifiziert werden, die zusammen mit der Ovulation stattfindet.

Die Veraenderungen des Endometriums waehrend des reproduktiven Zyklus koennen in 4 Hauptphasen eingeteilt werden: 1. Postmenstruelle Phase oder Stadium der Regeneration nach der Menstruation. 2. Zeitiges Proliferationsstadium, welches dem Wachstum des Endometriums entspricht. 3. Spaetes Proliferationsstadium, in dem das Wachstum ausgesprochener wird, sowohl in Groesse als auch in Anzahl der zugrundeliegenden Elemente. 4. Praegravides Stadium, in dem die Druesen eine korkenzieherartige Form annehmen und sich im Stadium aktiver Sekretion befinden; das Endometrium wird ausserordentlich dicht infolge der Bildung von deciduaaehnlichen Zellen.

Vor Beginn einer langwaehrenden hormonalen Therapie fuer uterine Blutungen und vor Stellen der Diagnose auf Meno-

pause oder nicht maligne Blutungen in Faellen von hartnaeckigen Blutungen ohne bekannte Ursache, sollte eine Probeexcision des Endometriums vorgenommen werden.

Untersuchungen von Endometrium-Gewebe, erhalten vermittels der Novak'schen Saug-Kurette oder der "Beiss"-Kurette nach Burch geben einen wichtigen Aufschluss ueber den Entwicklungszustand des Endometriums und helfen bei der Diagnose auf Uterus-Fundus Carcinom.

SUMARIO

Causas de la hemorrhagia uterina; organicas y funcionales son las discutidas, y la fisiología del utero es estudiada como un ciclo de reproducción en vez de la fisiología de la menstruación.

Durante el ciclo reproductivo ocurren combios en las glandulas endocrines y en el endometrio. Las hormonas del lobulo anterior responsables por estos cambios son conocidas como la hormona folicular estimulante ó factor, prolan A, y la hormona luteinizina ó factor prolan B.

Muchos casos de hemorragias las cuales se presentan como al medio del periodo menstrual pueden ser clasificadas como "ovulacion hemorragica," presentandose cuando la ovulación toma lugar.

Los cambios del endometrio que ocurren durante el ciclo reproductivo son dividido en cuatro fases principales: (1) Fase post-menstrual que es fase de regeneración ó reparación despues de la menstruación. (2) El estado primario proliferatívo, el cual es de crecimiento del endometrio. (3) El estado tardío proliferatívo en el cual es mas marcado el crecimiento, ambos en tamaño y en número de sus elementos constituyentes. (4) El estado pre-grávido en el cual las glandulas toman una apariencia de tirabuzón y estan en un estado de secretión activa y es cuando el endometrio se vuelve extremadamente espeso debido á la formación de decidua con apariencia de células.

Antes de comenzar un curso largo de tratamiento de las hemorragias uterinas con hormona ó antes casos de hemorragias uterinas persistentes sin patología conocida ó aceptadas como trastornos de menopausia, ó no maligno, biopsia del endometrio debe hacerse.

Estudio del tejído endometrial obtenido por la cureta de absorción como las usadas por Novak o la cureta mordiente de Burch da una información muy grande con respecto al desarroyo del endometrio y tambien ayuda en el diagnostico del cancer del fondo uterino.

It is with pleasure we announce that Dr. Felix Cunha will regularly contribute to this section of the TRANSACTIONS articles of historical interest.

INDIGESTION AND COSTIVENESS IN 1831

EDWARD JUKES

IN the period of about one hundred years ago in England, it was apparently as difficult to initiate into peoples' minds the use of enemas as it is at present in our own times difficult for us to check the all too prevalent use, or rather abuse of the enema. That this was truly so, we can gather from reading Mr. Edward Jukes' monograph, or rather booklet, inasmuch as it is in actual material pages a volume more than a monograph, published not for medical consumption but for sale to the public at large as a bit of propaganda and advertising, not only for the use of the enema as a general cure-all but, of course, as ballyhoo for Mr. Jukes' most recent invention — the enema tube.

For the origin of Mr. Jukes' instrument and of his volume, one has to go a bit back into previous medical history with regard to the discovery of the stomach tube. There has always been a controversy as to who actually originated the stomach tube. This same Mr. Jukes claimed that in 1822 he had first proposed to the medical profession in England the use of this new and novel method of putting in and taking out various types of medications and lavages in and from the stomach.

The well known and celebrated American physician, Dr. Physick of Philadelphia, however, was known to have been using a type of stomach tube in his practice as early as 1812, and it is thought that he obtained not only his ideas, but the actual tubes he used from some European source that he had visited on his world travels many years before.

It is also described in the medical manuscripts of the XIIIth, XIVth, and XVth centuries that very thin tubes made of silver and covered with sheep's gut were used by the physicians of those times. Stomach tubes made of very fine but very flexible leather with small reeds as stylets were used in the XVIth century throughout middle Europe by physicians.

Mr. Jukes, however, insisted that he was the discoverer of the stomach tube, and that he had treated many cases of disease by means of same, so that in his unbridled enthusiasm

FELIX CUNHA, M.D., F.I.C.S.

and his desire to treat all the cavities of the body by means of his particular principal, it is only in natural sequence then that his attention should have been focussed upon the rectum and vagina and the net result of all this study and attention was the invention of a method, and of a particular style of tube, for the giving of enemas.

It was only a step further then, having

adapted a technique for emptying the lowest portion of the colon, to spread out into further fields, or cross new horizons, and attempt to flush out the entire colon, so that makes our Mr. Jukes possibly the real originator of colonic lavage.

The complication that arose to confront Mr. Jukes came from the fact that as soon as a wave of enthusiasm started for this method of not only keeping yourself well, but of preventing any and all diseases, the general public grasped the idea that it was not necessary that these treatments should be supervised or administered by physicians, inasmuch as no technical skill was really required, and so began treating itself indiscriminately, aided and abetted, knowingly or unknowingly, by Mr. Jukes placing his apparatus on sale everywhere so that any or all might buy it. He evidently was not an altruist.

Mr. Jukes' announcement of his tube and method was followed by similar announcements in France, Germany and Italy, where some individual there would make a slight change in the calibre or curve of the tube, or announce some slight additional gadget, and then claim priority for the entire method. In these countries the fad spread very rapidly and after only a short time interval the lay public had taken into its own hands the indescriminate use of enemas and douches. The English public, with true conservatism, were a bit slow in being convinced and, although many prominent British medical men of the day had been over on the Continent and were fully posted as to the use of the enema and had returned to England advocating the use of this, they met with no enthusiastic response from either their medical confreres or on the part of the lay public. That attitude may explain why Mr. Jukes had to take his case directly to the public by means of propaganda and advertisement.

An occasional doctor would become so enthusiastic a convert that he spent his entire professional time dedicated to seeing that the method was made familiar to everyone he came in contact with, whether professional or layman.

As is usual in these bursts and waves of enthusiasm on the part of the public at large, the pendulum always swings at first to radical extremes until abuses arise, dangers are noted, and accidents occur; there follows a period of sober evaluation, and if the method or apparatus has merit it returns to public favor, but in a much saner and more subdued manner.

Apparently the use of the enema as a therapeutic measure went through these very phases. To return to Mr. Jukes himself and his own particular instrument and method for the giving of "lavements," the reproduction of the title page of Mr. Jukes' brochure shows that he does not hesitate to style himself as the inventor of the stomach tube, and prints it boldly where all may see. The preface to the booklet is so naïve that it is deemed of sufficient interest to quote in toto as follows:

PREFACE

The attention of the Author having been directed for a number of years to the various mechanical, as well as scientific means, requisite to exercise the healing art, and particularly to those more especially necessary to the preservation of the healthy functions of the stomach and bowels, as well as their restoration from disease, he ventures to place before the Public and the Professional the results at which his experience has enabled him to arrive, in relation to those important subjects. To preserve the actions of the stomach and bowels, is to resist, in the most effectual manner, the inroads of nearly all diseases. Whilst the officers of these organs are duly performed, health may be said to be enjoyed; and the foundation of all other enjoyments, of all undertakings, and the happy prosecution of all our pursuits, laid on the surest basis. It is to these organs, also, that our means of cure are applied; and on them are intended primarily and mainly to act, in the removal of almost every disease to which the human frame is liable. Surely, therefore, the best mode of exhibiting our remedies, so as to act efficiently upon those organs, and at the same time without injuring, but on the contrary promoting, their healthy functions, must be matters of the first importance to the Public, and to Professional Men. The Author ventures to think that his investigations have tended to promote these great ends; and it is the object of the present little Work to extend the advantages which he believes them well calculated to afford.

London, Feb. 24, 1931.

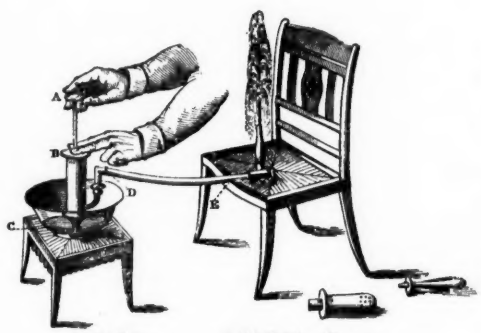
* * *

In the first paragraph of his introduction, however, he gives away the information that these methods were in use on the Continent.

INTRODUCTION

The period seems at length to have arrived when our prejudices are disappearing before the lights of science and experience. In no

other department of medical treatment is that so very obviously the case as in that which more immediately relates to the subject of the present little work. The experience of ages, in every country and climate, had proved the frequent inconvenience and failure, and the not less frequent impropriety, of exhibiting purgative or aperient medicines in the usual manner; and shewn the advantages which accrued from the employment of the same kind of remedies in a different form, namely, in that of lavements, Prejudices, in many respects inseparable from our national character, and honourable to our feelings, have prevented the general adoption of the practice amongst ourselves, unless in dangerous cases, although it has long been generally resorted to in foreign countries, as a necessary do-



A The Piston. D Side Opening of Syringe.
B Top of Syringe. E Flexible Tube.
C Bottom of do.

mestic mode of treatment in the majority of ailments, as well as one of the best preservatives against the first attack of disorder.

This disinclination to employ a very beneficial, and indeed, almost indispensable method of relief, arose in some degree also from the construction of the apparatuses formerly used to attain the wished-for end. Some of these required the agency of a second person; and all of them were either managed with difficulty by the individual who required their use, or with little service, and always with great inconvenience. Fortunately, the author's invention of the stomach-pump, and the practical application of the principle to the injection and withdrawal of fluids, into and from the stomach, furnished the profession, and the public in general, with the most effectual, the most easily managed, and the least unpleasant means of accomplishing what had been so great a desideratum in medical and domestic practice, and led to the attainment of all that could be desired in respect of the method of employing numerous remedies in the form of lavements, in the treatment of the very various affections to which the human frame is liable. This adaptation of his discovery to the most useful of purposes, had been attempted by various mechanists, and generally with success; but none of them satisfied him, until, after various modifications, he adopted a new apparatus, constructed on principles which will insure the convenient, the efficacious, and the most delicate employment of a plan of treatment, which has been approved by the most eminent medical practitioners of this country and on the continent, as the most efficacious in removing, not only those affections which are noticed in this little work, but also many other diseases which could not be embraced within its limits.

Having thus attained the principal objects of the invention, namely, a perfect apparatus for the exhibition of lavements, complete in its operation, admitting of the readiest adaptation, and easiest employment by the person requiring its use, and without the least alarm to the most sensitive feelings — the author thinks it only due to himself, as the person chiefly concerned in its invention, and improvement, to acquaint the public, whose distresses it is intended to remedy, with the advantages attached to the self-employment of lavements, in relation to the prevention as well as the cure of diseases.

In order that the reader may accomplish this first object, namely, the prevention of disease, as far as preserving a regular state of the bowels may contribute to this end, the author will first give a brief view of the form, relations, and functions of the alimentary canal, or those organs more immediately concerned in the office of digestion; and he will afterwards proceed to offer some remarks upon the circumstances which more especially require the employment of lavements and medicated injections. He may truly state, that there is nothing advanced in behalf of this mode of treatment, which is not well known to every respectable member* of the medical profession, but which, owing to its novelty in this country, is, generally speaking, unknown to the public, and consequently to the great majority of his readers.

*The author may take the present opportunity of stating, that his invention of the stomach-pump has already been the means of saving the lives of many hundred persons—that, immediately upon

its promulgation, it received the approbation of the most eminent medical characters in this country, and in Paris, where the author also introduced it with strong recommendations in its favour, with which he was honoured by Sir Astley Cooper and other celebrated men — and that it is now adopted by every member of the profession.

* * *

It is not necesary to go into his anatomical and physiological chapter on the digestive tract except to say that in all probability the book was intended directly for lay consumption, inasmuch as in Chapter I there is a crude anatomical diagram with brief reference by markings to the different organs and their functions, "That the reader may more easily follow my remarks."

In speaking of the power of absorption of the lower bowel he states:

"I have had the opportunity of injecting a quantity equal to eight glasses of gin and water, as it is commonly mixed at taverns for drinking, and in one hour afterward the man was in a complete state of intoxication. His statement to me was, that four glasses of liquor thus mixed was as much as his head could bear when taken into the stomach."

The above statement he presents merely illustrative of colon absorptive ability, not to be construed that more liquor could be taken by such a means totally lacking in esthetic property.

Again in the chapter headed "Physiology" he states on page 20:

"It is a well known fact and daily experience goes to prove, that our churchyards are the receptacles of thousands who fall a sacrifice to the implicit confidence placed in cathartics as medicines, unassisted by any other means, especially by the use of lavements. Such indeed has been the mad urge for the purchase of patent drastic pills and powders that the stomach and bowels have had their vital energy entirely destroyed and the necessity for a daily repetition as well as additional strength, has been increased by every repeated dose, until the bowels are rendered callous to all remedies, and the case at last terminates in irremediable or fatal disease, frequently in most obstinate constipation, cholera, violent colic, inflammation, iliac passion, gangrene and death."

That term "iliac passion" as used in the above paragraph followed by the terms "gangrene and death" one would take to refer to our more modern "appendicitis" and here's a doctor of old preaching unwittingly what we as physicians would much desire to have brought home to the lay public, no cathartic to be given in any acute abdominal discomfort. That term, itself, "iliac passion," is interesting and intriguing.

"It is the same with purgatives as with stimulants; stimulants require to be repeated; if a man gets intoxicated today, he wants a dram tomorrow. If a person takes a powerful purge today, he will require another tomorrow or no satisfactory relief will be obtained.

Numerous are the diseases produced by this practice of using purgatives. I allude to piles, fistula and stricture in the rectum."

Apparently Jukes was a very busy doctor as he cites a rather extensive obstetrical practice of years as a practical background of experience for support of his theories and arguments, viz:

"Ten cases out of twelve of death in childbed may be traced to the ill effects of costiveness during pregnancy, at which time females are more liable to this disease than at any other period of their lives."

New Instruments

A NEW INSTRUMENT FOR THE IRRADIATION OF INTRINSIC CARCINOMA OF THE LARYNX

FRANK E. SIMPSON, M.D.
CHICAGO, ILLINOIS

AN instrument for the intralaryngeal application of radon to carcinoma of the larnyx has been developed by the writer with the cooperation of his colleagues, Doctors E. W. Hagens, D. E. Brown, W. Bond, J. E. Breed and J. S. Thompson, Ph.D.

While designed especially for intrinsic carcinoma, the instrument can also be used for benign lesions, such as keratosis of the chord or angioma of the larynx.

It can also be adapted to subglottic lesions or lesions of the bronchus and esophagus of suitable character.

A preliminary description of the instrument, which is modeled after the Jackson bronchoscope, has already been published (1).

Radon gas is used instead of radium because of the possibility of concentrating a large quantity of radon in a small tube.

THE RADON CARRIER

In Figure 1, A shows the steel radon carrier.

A gold capsule holding the radon is attached by a nickel screw thread to the distal end of the radon carrier.

The gold radon capsule has the following dimensions: length, 4.5 centimeters; outside diamenter, 0.5 centimeter; wall thickness, 0.1 centimeter. It contains two standard enameled silver screens, placed end to end. Each of these contains a glass radon tube. The quantity of radon in two glass tubes varies from 300 to 500 millicuries.

Three small flanges projecting at equidistant points from the periphery of the steel shaft of the radon carrier are situated ½ centimeter above the gold radon capsule.

The object of these flanges is to keep the gold radon capsule when inserted into the aluminum tube (B) exactly in the center of the lumen of the tube and therefore at a fixed distance from the intralaryngeal lesion.

At the proximal end of the radon carrier (A) is a sliding set screw which can be clamped down on the proximal end of the aluminum tube (B) thus preventing lateral or perpendicular motion when the former is inserted in to the latter.

The steel shaft of the radon carrier is marked in centimeters.

THE ALUMINUM TUBE

B shows an aluminum tube which is introduced into the larynx between the true vocal chords. Dimensions: length, 26 centimeters; outside diameter, 1 centimeter; thickness of wall, 0.1 centimeter.

The tube is marked in centimeters so that the distal end can be placed at a fixed distance from the patient's upper teeth.

The aluminum tube is open at both ends so that the air passes freely through it.

THE MIGNON LIGHT CARRIER

In the wall of the aluminum tube (B) is a groove into which a mignon light carrier is inserted. The mignon electric light bulb lies at the distal end of the groove and lights up the distal end and lumen of the aluminum tube (B), thus facilitating its introduction into the larynx.

An attachment for the wires leading to the rheostat is shown at the proximal end of the light carrier (C).

TECHNIC

The patient is usually given ¼ grain (0.015 Gm.) of morphine sulphate and 1/100 grain (0.006 Gm.) of atropine sulphate ½ hour prior to the introduction of the instrument.

The pharynx and interior of the larynx are anesthetized with 2% pontocaine hydrochloride.

Standing behind the patient with the patient's chin tilted up and head held back, the

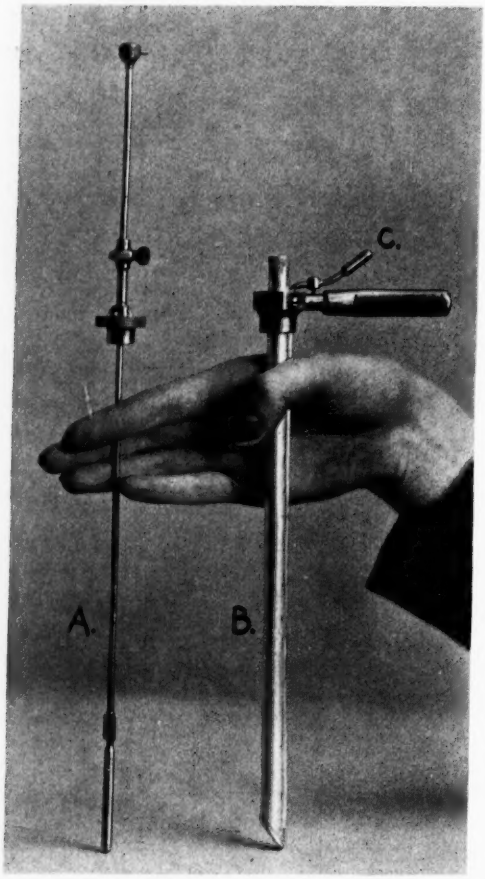


Fig. 1. Photograph of instrument for intralaryngeal irradiation.

operator introduces the aluminum tube containing the mignon electric light bulb into the larynx under direct vision.

When in place the distal end of the aluminum tube is approximately 2 centimeters below the true chords. The steel radon carrier (A) is then inserted into the aluminum tube (B). When in position, the distal end of the gold radon capsule is flush with the distal end of the aluminum tube. Before insertion, a silk ligature is passed through a hole in the distal end of the radon capsule and tied around the radon carrier. In case of breakage at the joint, the radon capsule cannot drop into the trachea.

The radon is kept in place for from 10 to 15 minutes. For carcinoma, treatments are repeated at 2 to 5 day intervals until approximately 500 to 750 millicurie hours have been given.

It is perhaps needless to point out that this method should be used only by one skilled in the use of the bronchoscope.

ADVANTAGES

The intralaryngeal method described is (1) non-operative and (2) painless.

(3) Breathing is not obstructed during treatments as the air has ample room to pass through both ends of the aluminum tube (B).

(4) The radon capsule is held at a fixed distance from the surface of the neoplasm.

(5) The treatments being relatively short, the strength of the patient is not taxed.

(6) The danger of injury to normal tissues of the larynx is minimized.

(7) The speaking and singing voice may be restored.

(8) If irradiation fails, operation can still be resorted to if advisable.

REPORT OF CASE

Mrs. J. W. Y., aged 80, complaining of persistent hoarseness of six months duration, was admitted in March 1938, to Central Free Dispensary (Rush Medical College), Chicago; service of Dr. E. W. Hagens.

Laryngoscopic examination disclosed on the anterior 1/3 of the right vocal chord a smooth rounded tumor of reddish color, 6 millimeters long and elevated 4 millimeters above the surface of the chord.

Biopsy by Dr. E. W. Hagens confirmed the diagnosis of intrinsic carcinoma of the larynx, Grade 2 (Broders). (Fig. 2).

TREATMENT

Between April 7 and May 5, 1938, 8 intralaryngeal irradiations each lasting 10 minutes

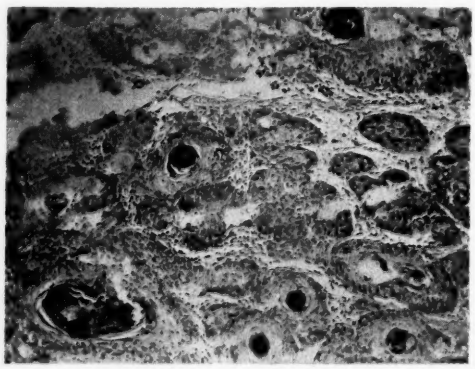


Fig. 2. Photomicrograph of section of lesion of right vocal cord. X150. Squamous called Carcinoma Grade 2.

and 1 irradiation lasting 15 minutes were given at 2, 3, and 5 day intervals (total of 435 millicurie hours). Dr. D. E. Brown introduced the radon into the larynx.

The radium bomb was applied to the cutaneous surface over the larynx (5000 millicurie hours at 4 centimeters distance).

SUBSEQUENT HISTORY

No pain followed the irradiations.

On May 5, 1938, the speaking and singing voice was completely restored.

On June 1, 1938, the vocal chords appeared normal.

On October 1, 1938, six months after beginning treatment, the voice was still perfectly natural and upon laryngoscopic examination, it was difficult to detect which chord had been affected.

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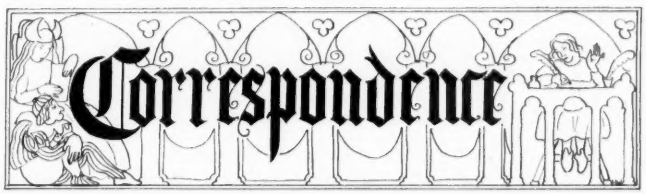

HEMORRHAGIC PANCREATITIS AND INTESTINAL INFARCT

Editor, Transactions International College of Surgeons, Sir:

A TRAGIC coincidence occurred on the last two voyages of the Normandie, the 27th of July and the 11th of August, in the form of two serious abdominal emergencies similar in their clinical physiognomy and in their extreme gravity.

On the 27th of July, 1938, the Normandie stopped at Southampton and was continuing its voyage toward New York when a patient, one of the boat's typists, Marcel L——————, 40 years of age, was brought to the ship's infirmary. While typing, he experienced a severe stab-like pain in the abdomen. He bent over his typewriter and vomited a bilious fluid. Upon admission, the patient ceased vomiting but was in severe shock, face pale, extreme anxiety, and he complained of acute and persistent abdominal and back pain. This pain was most marked in the supraumbilical region. His pulse was 130 per minute, rectal temperature normal, respiration normal, and no abdominal rigidity. The abdominal tenderness was most marked in the epigastric region. He was given an injection of morphine and ice was applied to the epigastrium, but patient experienced no relief. There were no other physical signs. Owing to patient's extreme pain, he avoided talking and moving, and his general condition did not permit a detailed examination such as radioscopy to ascertain the presence of a pneumo-peritoneum due to an intestinal perforation. The patient gave no previous history of digestive disturbance. One of his comrades, however, confided to us that a few months previously he had taken some cholagogue medication for some vague gall bladder symptoms. We made the diagnosis of "acute surgical abdomen" characterized by shock due to hemorrhage (?). The acute abdominal pain resisted morphine. Absence of gastro-intestinal antecedents and definite signs of acute peritonitis were noted. We thought

of an acute pancreatitis but we recalled that we had had a similar experience in which at the time of operation we had to change our diagnosis to acute perforation of the intestinal tube. Thus, instead of making the exceptional diagnosis of pancreatitis, we made the more common one of gastro-duodenal perforation.

In both cases immediate operative intervention is indicated. The operating and sterilizing rooms of the boat hospital were prepared. While notifying the captain of the ship of this decision, the following questions arose:

(a) Shall we undertake on board the ship a delicate abdominal operation on a man who seemed almost dead, when the ship was so close to Southampton, still in the English Channel and going to Plymouth? or,

(b) Would it not, perhaps, be better to leave the patient in an accessible port where he could be operated under better conditions, with greater chances of success, and in a specialized surgical clinic?

We decided upon the latter course.

Two hours later the patient was transferred to a tug-boat and completely immobilized. In the Clinic of Dr. Lenoueme he was operated on by Dr. Bouillé a few hours later. The laparatomy showed hemorrhagic pancreatitis with numerous biliary calculi in the cystic duct. The patient was operated upon at 3:00 a.m. and died at 6:00 a.m. The hemorrhage was diffuse and there were no signs of acute fat necrosis. We were dealing with the onset of a hypertoxic pancreatitis, the operative mortality of which is 75%. Some authorities recommend that in these cases no undue haste be shown to operate on these patients. A better prognosis is thereby obtained. Some clinicians tell us not to operate for acute hemorrhagic pancreatitis during the acute crisis.

This returning of the Normandie to port has provoked some criticism. It is always easy to criticize, especially for those on whose shoulders rests no responsibility. One journalist said, "What would have been done if the Normandie had been in the middle of the Atlantic? Would you have turned back? Impossible and needless." Needless, in fact, in any case like that, because it would have taken as long to go back as it had taken to proceed. Operations for appendicitis and blood transfusions have been practiced on board. We would have operated in this case with the hope of finding a perforation of the alimentary canal, and we would have had the same result. The ship hospital possesses the facilities for diagnosis and performance of emergency operations. Our surgical experience (7 years of surgical interneship with well-known surgeons) gives us the right to intervene surgically, but in this instance we hesitated for the good of the patient and without appreciable inconvenience to the ship.

On the following voyage the Normandie was in the Atlantic some distance from New York when one of the crew, 27 years old, came to the boat infirmary and complained of a diffuse abdominal pain, maximal in the supra-umbilical region, a pain which radiated neither above nor below, nor towards the back, and which was accompanied by profuse bilious vomiting. This sudden pain occurred in a robust adult, an individual of apparent good health, athletic build, and vigorous physique. Palpation produced diffuse pain. No rigidity at McBurney's point was noted. There was slight distention of the abdomen. The patient was placed under observation. The vomiting continued and pain increased. The patient was extremely restless. Morphine calmed these painful attacks. Before admission to the ship hospital, the patient had had a liquid stool. Temperature was normal towards the end of the first day and the afternoon of the following day. Before

his death it rose to 38 degrees centigrade. The heart was arrhythmic, and there was arterial hypertension. The urine was clear, and contained two grams of albumin per liter. No glycosuria. Towards the afternoon the patient presented a toxemic appearance, very pale, and a thready, weak, accelerated pulse of 150. Patient was in shock despite injections of cardiac tonics and intravenous injections of hypertonic glucose serum. The abdomen was distended, slightly tympanitic in the upper portion, dull in the lower portion, no peristalsis detectable. There were absolute constipation and no anuria. The patient had a hypertrophic prostate, but we succeeded in passing a soft catheter. We obtained only a few drops of urine.

In the presence of these occlusive signs, we thought of a pelvic appendicitis with obstructive symptoms. We abandoned this diagnosis owing to the absence of leucocytosis and to the presence of leucopenia. We made the diagnosis of intestinal obstruction of cardio-arterial origin and of a seriousness which we considered beyond surgical help. The only treatment of intestinal obstruction is operative, but the patient must be in condition to stand general or regional anaesthesia. The asystolic state of the patient was an absolute contra-indication to operation. The patient passed a fairly good night. On the morning of the following day he was not in much pain. His syncopal state evoluted rapidly towards death, which came at five o'clock in the afternoon. Autopsy showed what radiology would have shown if it had been practiced: Localization of the transparency of the colic region and of the hydroaeric images. It would have shown loops ileum bathed in profuse abdominal fluid (blood). The appendix was normal. The caecum and colons were intact. One intestinal band beneath a diverticulum of Meckel may have played a mechanical rôle in the intestinal occlusion.

The observation of these two desperate cases of hemorrhagic pancreatitis and intestinal infarct, which by a tragic coincidence occurred within a short interval on the Normandie — do they point to an object? We leave the answer to the meditation of our colleagues. We believe that it is not without practical interest to confess here among ourselves the professional anguish of a boat physician under such circumstances so difficult of diagnosis and that give such a bad prognosis. There has been some criticism of the turning back of the Normandie to put the patient in port. On land, colleagues may share responsibilities and thus facilitate the problem at hand but on midsea the responsibility of the ship physician is very great in the face of so rapid and tragic evolution of the conditions described. The responsibility of prompt diagnosis, prognosis, and treatment is here paramount. The question at issue is "Intervention or abstention?" Both present equal responsibilities.

Dr. Joseph Bohec (on board the S. S. Normandie, August 16, 1938).

News and Personals

A special department of facial palsy has been established at the **New York Polyclinic Medical School** and Hospital for teaching purposes with clinics every Thursday afternoon. Dr. Thomas G. Tickle is in charge of the department.

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At a recent meeting of the **Association of Italian Physicians in America** the following officers were elected: President, Dr. Anthony C. Cipollaro; vice-presidents, Dr. Peter Lavalie, Dr. Anthony Avaot, Dr. Joseph D'Oronzio and Dr. Amerigo Grimaldi; secretary, Dr. Dominic Romano; treasurer, Dr. George Biondi; trustees, Dr. Angelo Sala, Dr. Charles Perilli, Dr. Hannibal De Bellis, Dr. Salvatore Scorza and Dr. Gaetano Mecco; censors, Dr. Joseph E. Constantine, Dr. Joseph Tesi, Dr. Thomas Iovino, Dr. Michael Cavallo, Dr. Matthew Di Giorgio and Dr. Steffano Miele.

* * *

Dr. Wm. Seaman Bainbridge, New York, represented the U. S. Government and the Surgeon General of the Army at the meeting of the Permanent Committee of the International Congress of Military Medicine, Surgery and Sanitation, at Luxembourg, July 1st to 4th.

* * *

Dr. Alexis Carrel retired from active duty as a member of the Rockefeller Institute for Medical Research on July 1st. He had reached the automatic retiring age of sixty-five.

* * *

Dr. Charles F. Code, of the Mayo Foundation, Rochester, Minn., was awarded the Theobald Smith Medal of the American Association for the Advancement of Science, at the recent meeting held in Ottawa, Canada.

* * *

Dr. Rock Sleyster, of Wauwatosa, Wis., was named president-elect of the American Medical Association at the annual meeting held in San Francisco.

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A Western drive by the medical profession against **quackery,** medical frauds, superstition, malpractice and medical ignorance was launched by members of the A.M.A. at the dedication of the Hall of Science for the 1939 Golden Gate International Exposition on San Francisco Bay. The exhibit sponsored by the A.M.A. at the Fair was dedicated the same day. It was announced by Fair officials that the first exhibit to be moved to Treasure Island will be the University of California's $200,000 medical and scientific displays which will be housed in the Hall of Science. Many exhibit pieces under construction on the campus are being moved to the great island hall. Chairman at the dedication was Dr. Ray Lyman Wilbur, president of Stanford University and one time president of the A.M.A. The principal speakers included Dr. Irvin Abell, president of the A.M.A.; Dr. Morris Fishbein, editor of the J.A.M.A., and Dr. Thomas Parren, Jr., Surgeon-General and Director of the U. S. Public Health Service. Other participants were Dr. Langley Porter, dean of the University of California Medical School; Dr. J. C. Geiger, San Francisco public health officer, and Dr. N. N. Ash-

ley, Oakland public health officer, city, county and state officials and hundreds of delegates to the A.M.A. convention.

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Dr. Mario Castex, of Beunos Aires, has recently been awarded the decoration of Officer of the Legion of Honor.

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In commemoration of the 200th anniversary of the death of **Boerhaave,** the Dutch Medical Association, the Faculty of Medicine of Leyden, and the Society on the History of the Natural Sciences of Leyden will organize a celebration beginning September 23. The first day of the international exercises will be spent at Leyden. Those in attendance will visit the ancient wards of the clinics in the old Saint Cecilia Hospital where Boerhaave gave clinical lessons, and his country home "Poelgeest" near Leyden. On the second day visits will be made to the village of Hardewyk on the banks of the Zuyder Zee, seat of the ancient university where Boerhaave presented his medical thesis on July 15, 1693. A special commemorative volume will be published.

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A unit for clinical research in surgery has been established at Edinburgh by the Medical Research Council, acting jointly with the Royal Infirmary, the University and the Royal Hospital for Sick Children. The unit will be located in the Infirmary, with facilities also in the University Department of Surgery, and at the Hospital. The director is Mr. W. C. Wilson, F.R.C.S.E., who has for this purpose been appointed to the wholetime staff of the Council. This arrangement is for five years. The establishment of "units" or departments of this kind in selected hospitals forms part of a policy adopted by the Medical Research Council for the promotion of research work in clinical science, as opposed to the laboratory branches of medicine. Two units for research in clinical medicine, and one for research in neurology, have already been established in London. The new surgical unit is the first one under the scheme to be set up outside the Metropolis.

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Mr. R. S. Pilcher, M.B., M.S. (Lond.) M.R.C.P., R.R.C.S., has been appointed to the London University Chair of Surgery at the University College Hospital Medical School.

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Dr. William Seaman Bainbridge, New York, has been appointed consulting surgeon of the Wassaic State School at Wassaic, N. Y.

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Dr. S. S. Goldwater, commissioner, Department of Hospitals of New York City since 1934, has announced that he will retire as soon as his successor has been appointed.

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Dr. William E. Lower, of Cleveland, Ohio, has given to the Academy of Medicine of Cleveland, a fund to be used for a lectureship on subjects of general interest to the medical profession.

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Mr. Norman H. Davis, ambassador at large and adviser to the State Department on European Affairs, has been appointed chairman of the American Red Cross to succeed the late Dr. Cary T. Grayson.

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Prize for Work on X-rays — A David Anderson-Berry Gold Medal and about one hundred pounds sterling will be awarded in July by the Royal Society of Edinburgh to the person who in the opinion of the council has recently produced the best work on the nature of X-rays and their therapeutic effects. Applications for the award are invited; they may be based on both published and unpublished work and should be accompanied by copies of the relevant papers. Additional information may be obtained from the General Secretary, Royal So-

ciety of Edinburgh, 22 George Street, Edinburgh 2, by June 1.

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A new surgical clinic has been opened at Amsterdam replacing the Wilhemina Hospital and completing the new medical center of the Faculty of Medicine of the University.

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New Hospitals in London — St. Bartholomew's Hospital, the oldest foundation of the large London institutions has installed modern equipment. Westminster Hospital plans to have new buildings on a new site. The Middlesex Hospital is new. Plans for rebuilding St. George's on the same site are nearly completed. Guy's Hospital is reported to be making plans for modernization.

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A committee has been appointed to arrange for the erection at Pont-de-Beauvoisin in front of the canton hospital a **monument** to the memory of Charles **Gabriel Pravaz,** originator of the hypodermic method.

* * *

Sir William Bragg, president of the Royal Society, on June 9 officially opened the Meyerstein Institute of Radio-Therapy at the Middlesex Hospital, London, when Sir Edward Meyerstein, who has already contributed 30,000 pounds towards the cost of the institute announced his intention of giving an additional 16,000 pounds to defray the cost.

* * *

Prof. H. Matti succeeds Prof. De Quervain to the chair of surgery at the University of Berne. A succession of distinguished incumbents has held this position including Kocher who in 1909 was awarded the Nobel prize for his research on the thyroid. De Quervain is a pupil of Kocher and carried on the development of the famous school of surgery. With his retirement, medicine loses the active services of one of the greatest of Swiss surgeons. His principal literary contribution was his "Clinical Surgical Diagnosis" which has been translated into five languages and is considered a classic of surgery. Matti is also a pupil of Kocher and a surgeon of repute. He is 58 years old and has been director of the surgical section of a Berne Hospital. He has done important work on the surgery of gastric carcinoma, on the physiology and pathology of the thymus and in other fields but is best known through his two volume work on fractures and their treatment.

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Officers of the American Medical Association were elected at the San Francisco meeting as follows: President-elect, Dr. Rock Sleyster, Wauwatosa, Wis.; vice-president, Dr. Howard Morrow, San Francisco. Dr. Olin West, Chicago, was reelected secretary. The convention in 1939 will be held in St. Louis, in 1940 in New York City and in 1941 in Cleveland.

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A testimonial dinner was given to celebrate the 75th birthday on June 20 of **Dr. John M. T. Finney,** professor emeritus of surgery at the Johns Hopkins Medical School. He was presented with a bust of himself executed by Hans Schuler, president of the Maryland Institute. At a meeting on June 17 of the executive committee of the Baltimore Chapter of the American Red Cross, Dr. Finney was presented with a letter of congratulation from President Roosevelt.

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French nurses from now on must have state diplomas. This affords protection to both nurse and patient by elimination of the unfit and unprepared.

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Prof. Alexander Stanischeff, Head of the Surgical Department of the University of Sofia, Bulgaria; President of the Surgical Society of Sofia and Senior Regent for the International College of Surgeons for Bulgaria has been elected Rector of the University of Sofia.

Friends and students of **Prof. Mario Donati** paid him homage on May 29 in the great amphitheatre of the University of Milan. Prof. Donati is director of the surgical clinic of that university. The occasion was the 25th anniversary of his teaching activities. A large group of surgeons, students and admirers of the distinguished surgeon were present. Prof. A. Pepere, Director of the University, extended greetings. Addresses were made also by Prof. R. Alessandri and others. The occasion was an auspicious one.

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Dr. René Leriche, professor of clinical surgery, University of Strasbourg, will receive the Lister Medal for 1939 and will deliver the Lister Memorial Lecture in 1939, according to **Science.** The medal is given in recognition of distinguished contributions to surgical science.

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Dr. James D. Boyd, lecturer in anatomy, University of Cambridge, has been appointed to the chair of anatomy at London Hospital Medical College.

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Dr. Chevalier Jackson, of Philadelphia, will give a course of lectures on bronchoscopy and esophagoscopy, in collaboration with other lecturers, at the Hôpital Necker, Paris, August 23 to Sept. 1.

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The Third International Goiter Conference was held under the auspices of the American Association for the Study of Goiter at Washington, D. C., on Sept. 12-14, 1938. The officers elected for 1938-39 are: President—F. B. Dorsey, Jr., Keokuk, Iowa; President-elect—J. K. McGregor, Hamilton, Ontario, Canada; Vice President—Claude J. Hunt, Kansas City, Missouri; Corresponding Secretary—W. Blair Mosser, Kane, Pennsylvania; Recording Secretary—George C. Shivers, Colorado Springs, Colo.; Treasurer—V. E. Chesky, Halstead, Kansas, Councilors: Samuel F. Haines, Rochester, Minnesota; Allen Graham, Cleveland, Ohio; Frank H. Lahey, Boston, Mass.; J. H. Means, Boston, Mass.; J. R. Yung, Terre Haute, Indiana.

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Prof. A. Jirasek, Ex-President of the International College of Surgeons, was made an honorary member of the Slovanian Medical Society which has its headquarters at Ljoubljana.

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Prof. A. Kostitch, has been re-elected Dean of the Faculty of Medicine of Belgrad.

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"Nursing Illustrated" is a new publication which has just appeared under the editorship of Mr. Hamilton Bailey, F.R.C.S. It is to be a weekly journal and is especially adapted to nurses and personnel connected with institutions and hospitals. It is being published by the Hultin Press, Ltd. of London.

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Dr. Hyman I. Goldstein of Camden, New Jersey, was elected corresponding member of the Italian Society of Gastro-enterology of Rome, Italy.

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Dr. Cesare Frugoni of Rome, gave a series of lectures in South American Medical schools (Montevedio, Cordoba, Buenos Aires, etc.) during the months of August and September, 1938.

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The section of gastro-enterology of the Medical Society of New Jersey elected at its 172nd annual meeting held in Atlantic City, Dr. Manfred Kraemer of Newark, New Jersey, as chairman; Dr. Hyman I. Goldstein, Secretary. In the section of Surgery, Dr. Robert S. Gamon of Camden, New Jersey, was elected Chairman and Dr. L. A. Peer of Newark, N. J., Secretary; while in the section of Obstetrics and Gynecology, Dr. W. B. Mount of Montclair, N. J., was elected Chairman and Dr. J. C. Brown of Atlantic City, Secretary.

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According to **Health News** for August 15th, over six tons of marihuana, valued at $13,000, was burned by narcotic con-

trol officials on July 29 in Brooklyn. The collection was gathered from fields in the five boroughs by the Narcotic Bureau of the Municipal Police Department.

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The exhibit of Dr. Pasteur Vallery-Radot, grandson of Louis Pasteur, originally shown at the Paris Exposition last year, was again shown to the public on July 11 by Mr. Zay, minister of public education. The exhibit depicts the progress made by science over the past 150 years. At the entrance is an apparatus for generating static electricity constructed by Prof. Joliot, son-in-law of the late Mme. Curie. The discoveries of Langevin and Joliot are utilized on the piezo-electric vibrations of quartz and on ultra sounds in a minute organ capable of giving forth a range of sounds unimaginable. There are a planetarium and television exhibit. In the surgical sections are many charts, photographs of leading bacteriologists, wax figures depicting the methods of blood transfusion, etc. The exhibit is housed in the Palace of Discovery.

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A **department of neurosurgery** has been organized at the Faculté de medicine (medical school of the University of Paris). Dr. Clovis Vincent was appointed head of this department August 1 and will begin his courses at the opening of the fall session of the school.

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Interesting comparisons may be made of problems involving the nursing profession featured in "Evidence submitted by the British Medical Association to the Interdepartmental Committee on Nursing Services." The shortage of candidates which is becoming a serious problem would seem to be due to the strenuous discipline to which the prospective nurse is subjected and the salary and working conditions after graduation which do not compare favorably with other occupations. A lowering of professional standards has been proposed as a means to meet these conditions together with a lessening of discipline and provision for more leisure hours. **"Assistant nurses"** with lower professional standards are proposed to undertake certain types of nursing. The examinations now given are criticized as being too technical, and a "Group System for Training" is proposed by which an association of hospitals in an "appropriate area" would be "linked together to form a **training unit.**"

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With recent motu proprio The Order of the Crown of Italy, Knight of the Grand Cross, was bestowed on **Professor Mario Donati,** Director of the Surgical Clinic of the University of Milan.

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The **Missionary Sisters of the Sacred Heart,** will build a **hospital in Via Buonarroti in Milan.** It will have 300 rooms and 125 beds. The surgical section will be under the direction of Prof. M. Donati.

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Dr. Karl R. Ruddell, Regent for the International College of Surgeons for the state of Indiana, has been named President-elect of the Indianapolis State Medical Association. He will take office in 1940.

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Professor Raffaele Paolucci, one of the Regents of the International College of Surgeons for Italy, has been made Director of the Surgical Clinic of Rome. The United States Chapter joins the Editorial Board of the TRANSACTIONS in congratulating Professor Paolucci on this well merited distinction.

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The School of Medicine of the University of Pennsylvania will receive eventually the bulk of the estate of the late Dr. George E. de Schweinitz to found a chair of ophthalmology. Except for one bequest of $6,000 the estate of $105,000 was left in trust for a sister of Dr. de Schweinitz. After her death $5,000 will go to the College of Physicians of Philadelphia and the residue to the University. His medical library is left to the College of Physicians.

REPORT OF THE SOUTHERN ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS

CHARLES H. ARNOLD, M.D., F.I.C.S.
Secretary to the Scientific Assembly

THE Conference of the Southern Assembly of the International College of Surgeons (Geneva) was held at the Tampa Municipal Hospital, Tampa, Fla., on February 28, 1938. The following states were represented: Florida, Georgia, Alabama, Louisiana and Mississippi. The preparations were in charge of the Chairman, Dr. Julien C. Pate of Tampa, Florida. The committee was as follows:

J. C. Pate, M.D., F.I.C.S., Chairman, Tampa, Florida.

T. J. Dimitry, M.D., F.I.C.S., New Orleans, La.

Earl Conwell, M.D., F.I.C.S., Birmingham, Ala.

J. W. Barksdale, M.D., F.I.C.S., Jackson, Miss.

Edgar F. Fincher, M.D., F.I.C.S., Atlanta, Ga.

J. W. Snyder, M.D., F.I.C.S., Miami, Florida.

Dr. Pate and his committeemen selected the Floridan Hotel as headquarters for the Southern Sectional Assembly. 258 surgeons from 18 states were registered. Visitors were met and welcomed most hospitably by the reception committee.

JULIEN C. PATE, M.D., F.I.C.S.
Chairman of Southern Assembly. Director of Surgery, Tampa Municipal Hospital, Tampa, Florida

Mr. T. S. Alexander, Superintendent of the Tampa Municipal Hospital very generously placed the facilities of the hospital at the disposal of the College, and it was here that the surgeons assembled and carried out the program as

Southern Assembly United States Chapter of the International College of Surgeons, Tampa, Florida, Feb. 28, 1938

arranged by Dr. Pate and his committeemen.

The meeting was called to order at 9:00 A. M. by Dr. J. C. Pate, Tampa, Fla., Chairman of the Program Committee.

An exceedingly interesting program was presented as follows:

Invocation by Rev. A. J. Moncrief, Jr., Pastor of the First Baptist Church.

Address of welcome in behalf of the City of Tampa by Mayor R. E. L. Chancey.

Address of welcome by Dr. Geo. L. Cook of Tampa, in behalf of the Hillsboro Medical Association.

Address of welcome by Dr. Joseph W. Taylor of Tampa, in behalf of the Hillsboro Medical Association.

A letter of welcome presented by Dr. A. T. Eide of Lake Placid, Florida, from Governor Fred Cone in behalf of the State of Florida.

Dr. André Crotti of Columbus, Ohio, presented a paper on "Some of the Newer Aspects of Endocrines."

Discussion by Drs. L. L. Whiddon of Ft. Pierce, Fla., N. L. Spengler, of Tampa, Fla., and G. C. Bottari, of Tampa, followed.

Dr. William Jepson of Sioux City, Iowa, presented a paper on "Future of Surgery and How We May Improve it."

Dr. Vincent A. Lapenta of Indianapolis, Ind., presented a paper on "An Educational Dream Becomes a Reality."

Dr. Charles H. Arnold of Lincoln, Nebr., presented a paper on "Splanchnic Anesthesia."

Discussion by Dr. Vincent A. Lapenta of Indianapolis, Ind., Dr. G. C. Bottari and Dr. J. C. Pate of Tampa Fla.

Dr. Edgar F. Fincher of Atlanta, Ga., presented a paper on "Chronic Sciatica Resulting from Displacement of the Intervertebral Cartilage."

Discussion by Dr. Fred H. Albee of New York City and Venice, Fla., and Dr. Jas. R. Wells of Daytona Beach, Fla., and Dr. J. C. Dickinson of Tampa, Fla.

Dr. Earl B. Craig of Philadelphia, Pa., announced that there would be a meeting of the International College of Surgeons held in Philadelphia, October 13 and 14 and extended a cordial invitation to all members and guests of this Conference to attend the Philadelphia meeting.

Dr. Oscar B. Nugent of Chicago, Ill.,

presented a paper on "Surgical Management of Cataract."

Discussion by Dr. Jos. W. Taylor and Dr. Wm. Patterson of Tampa, Fla.

A complimentary luncheon was served in the large dining hall of the Municipal Hospital to the visiting surgeons by the management of the Municipal Hospital, under the direction of Mr. T. S. Alexander, Superintendent. The menu was unique in that it consisted of articles of food, all produced in Florida. Many other courtesies were shown by Mr. Alexander to the group of visiting surgeons and Fellows. The visit at the hospital was an enjoyable one and will be long remembered by all who had the privilege of attending.

At the luncheon, grace was offered by Rabbi David L. Dielonka.

At 2:00 p. m. the scientific program was resumed.

Dr. Max Thorek of Chicago, Ill.. presented a paper on "Electrosurgical Obliteration of the Gall Bladder."

Discussion by Dr. Jas. R. Wells, of Daytona Beach, Fla., Dr. Frank S. Adamo, Tampa, Fla., and Dr. Benjamin I. Golden of Elkins, W. Va.

Dr. Gilbert Franklin Douglas of Birmingham, Ala., presented a paper on "Study of Uterine Bleeders, Endometrial Biopsies."

Dr. John E. Cannaday of Charleston, W. Va., presented a paper on "Presacral Nerve Resection as a Treatment for Dysmenorrhea."

Discussion by Dr. Gilbert Franklin Douglas of Birmingham, Ala., Dr. Frank S. Adamo, Tampa, Fla., and Dr. André Crotti of Columbus, Ohio.

Dr. Benjamin I. Golden of Elkins, W. Va., presented a paper on "Repair of Inguinal Hernia." This was augmented by an animated motion picture.

Discussion by Dr. Wm. Jepson, Sioux City, Iowa and Dr. Vincent A. Lapenta of Indianapolis, and others.

Dr. Fred H. Albee of New York City and Venice, Fla., presented a paper on "Restoration of Motion to Boney, Stiff Joints."

Discussion by many Fellows and members.

Following Dr. Albee's paper, the Scientific Assembly adjourned. A banquet was held at the Floridan Hotel at 8:00 p. m. Grace was offered by Rev. Felix J. Clarkston, S.J., rector and pastor of the Sacred Heart Church. Miss June Earle, soprano, sang several delightful numbers between courses.

At the banquet Dr. Julien C. Pate presided as Master of Ceremonies and expressed his appreciation to his various committees for the work they had done in assisting him in the preparation and carrying out of the program of the day. He called on President Crotti for a few remarks. He announced that the Executive Council had outlined the prizes to be given for original research and presentation of theses on various surgical subjects (this announcement was made in a previous issue of the TRANSACTIONS). Dr. Crotti further stated that Dr. Julien C. Pate had been elected to membership on the Board of Trustees of the United States Chapter of the International College of Surgeons.

Dr. Crotti expressed to Dr. Pate the appreciation of the Council and officers for the work that he and his committeemen had done in making the Southern Assembly the unqualified success that it was.

Dr. Pate introduced Dr. William Rowlett, Secretary of Board of Florida State Medical Examiners, who delivered a delightful impromptu address.

Meeting adjourned at 10:45 p. m.

SCIENTIFIC ASSEMBLY OF THE UNITED STATES CHAPTER OF THE INTERNATIONAL COLLEGE OF SURGEONS HELD AT THE BELLEVUE-STRATFORD HOTEL OF PHILADELPHIA, ON OCTOBER 13 AND 14, 1938

MOSES BEHREND, M.D., F.A.C.S., F.I.C.S., General Chairman

THE second National Assembly of the United States Chapter of the International College of Surgeons will be held in Philadelphia, Penna., on October 13 and 14, 1938. Splendid progress has already been made in preparation for this Assembly and the following surgeons have accepted responsibilities as outlined below.

General Chairman of Philadelphia Assembly: Moses Behrend, M.D.

Committee on Scientific Program: Dr. W. Wayne Babcock, Chairman; Dr. P. Brooke Bland, Dr. E. L. Eliason, Dr. William Bates, Dr. D. Roman, Dr. Walter I. Lillie, Dr. Temple Fay.

Committee on Publicity: Dr. Temple Fay, Chairman; Dr. John Royal Moore, Dr. Thomas Shallow.

Committee on Clinics: Dr. William Bates, Chairman; Dr. Thomas A. Shallow, Dr. Walter I. Lillie.

Committee on Hotel Reservation: Dr. M. A. Weinstein, Chairman; Dr. D. Roman, Dr. Earl Craig.

Ladies Entertainment Committee: Dr. C. L. Jackson, Mrs. William Bates, Mrs. Walter I. Lillie.

Committee on Banquet: Dr. C. L. Jackson, Chairman; Dr. M. A. Weinstein, Dr. Earl Craig, Dr. Melvin M. Franklin*.

Registration begins Wednesday, October 12th, 2 p. m.

*Deceased August, 1938.

PROGRAM OF THE PHILADELPHIA MEETING OF THE INTERNATIONAL COLLEGE OF SURGEONS

THURSDAY, OCTOBER 13, 1938

2 P. M.

Introduction of speakers by André Crotti, M.D., President of the U. S. Chapter of the International College of Surgeons:

Address by the Honorable George H. Earle, Governor of the State of Pennsylvania; Address by the Honorable S. Davis Wilson, Mayor of the City of Philadelphia. Announcements by Chairman of the General Committee.

SCIENTIFIC PAPERS

2:30 P. M.

*Gastrectomy—John F. Erdman, M.D., New York, N. Y.

3 P. M.

Motion Picture of Human Larynx; Surgical Significance in Normal and Abnormal States — William H. Lell, M.D., Philadelphia.

3:30 P. M.

Extrapleural Thoracoplasty: Further Experiences with a Muscle Splitting Operation — Jerome R. Head, M.D., Chicago, Ill.

4 P. M.

Lesions of the Cranial Nerves—Walter E. Dandy, M.D., Baltimore, Md.

*Time allotted for all papers will be 20 minutes. Ten minutes will be allowed for discussions.

THURSDAY AFTERNOON

Entertainment and trips for the ladies.

7 P. M.

Buffet Dinner at the Bellevue-Stratford Hotel.

SURGICAL FORUM — 8:30 P. M.

General Surgery—The Differentiation Between Visceral and Parietal Pain, in Arriving at a Surgical Diagnosis—Wm. Bates, M.D., Phila., Pa.

9 P. M.

Gynecology and Obstetrics—A Critical Survey of Five Hundred Abdominal Hysterectomies — James E. King, M.D., Buffalo, N. Y.

9:30 P. M.

Otolaryngology—Surgery of Cancer of the Larynx — Gabriel Tucker, M.D., Phila., Pa.

10:30 P. M.

Cabaret Floor Show for members and their ladies—Dr. Temple Fay, Phila., Pa., Director.

Entertainment and trips for ladies Thursday afternoon.

FRIDAY, OCTOBER 14, 1938

SCIENTIFIC PAPERS

1:30 P. M.

Pharyngeal Diverticula, One Stage Resection — Thomas A. Shallow, M.D., Phila., Pa.

2 P. M.

The Duodenal Syndrome Associated with Aberrant Superior Mesenteric Artery — Felix Cunha, M.D., San Francisco, Calif.

2:30 P. M.

The Present Status of Surgery of the Gall Bladder — Julian C. Pate, M.D., Tampa, Florida.

3 P. M.

The Pathological Basis for the Treatment of Prostatic Hypertrophy—David M. Davis, M.D., Phila., Pa.

3:30 P. M.

The Importance of Blood Supply in Fracture of Neck of the Femur — Fred H. Albee, M.D., New York, N. Y.

5 P. M.

Executive Meeting of Members and Fellows.

7:30 P. M.

ASSEMBLY BANQUET

Address by President Crotti.

Conferring of Degrees.

Organization in Surgery — Prof. D. Hans Finsterer, Vienna, Surgical Treatment of Gastric Hemorrhage.

CLINICS

THURSDAY AND FRIDAY, OCT. 13 AND 14

Busses or taxicabs leave for clinics at 8:30 A. M. from the Bellevue-Stratford Hotel.

Special Clinics 9 to 12 A. M. (wet and dry).

Temple University Hospital Unit

General Surgical Clinics

1. Dr. G. Mason Astley: General Surgical Clinics—10-12 A. M., Oct. 13.

2. Dr. W. Wayne Babcock: General Surgical Clinics—8-12 A. M., Oct. 13 and 14.

3. Dr. John Royal Moore: Femoral Shortening for equalization of length of lower extremities. Shelf operation for congenital dislocation of the hip. Anterior positioning for congenital dislocation of the hip. October 14 at *Shriners Hospital.*

4. Dr. J. Norman Coombs: 1. General Surgical Operations. 2. Peritoneoscopy—9-12 A. M., Oct. 13 and 14.

General Surgery

Dr. Louis D. Englerth and Dr. S. Dale Spotts: Gastric Surgery — 9-10 A. M., Oct. 13.

Neuro Surgery

Surgical and Dry Clinics. Dr. Temple Fay: Pain Mechanism Including Trigeminal and Atypical Neuralgia—9 A.

M., Oct. 13. Lesions of the Brain and Spinal Cord—9 A. M., Oct. 14.

Thoracic Surgery

1. Dr. W. Emory Burnett: Thoracic Surgery—10-12 A. M., Oct. 13 and 14.

2. Dr. Louis Cohen: Clinic on compression therapy in pulmonary tuberculosis and Demonstration of pneumothorax refills, fluoroscopy of pneumothorax patients—9-12 A. M., Oct. 13.

Gynecologic Surgery

1. Dr. Harry Duncan.

Rectal Surgery

1. Dr. Harry E. Bacon: 1. Rectal Clinic — 10:30-12 A. M. 2. Operative Clinic—3 P. M., Oct. 14.

Opthalmologic Clinic

1. Dr. W. I. Lillie: (to advise on his return).

Bronchoscopic Clinic

1. Dr. C. L. Jackson and Dr. E. L. Van Loom—9 A. M.

2. Dr. W. Edward Chamberlain:

1. A one hour demonstration entitled "Recent Improvements in Our Approach to the Problem of Low Back Pain."

2. A Demonstration entitled "The Hydro Dynamics of the Cranio Vertebral Cavity," illustrated by a working model.

3. A scientific exhibit in the X-ray Museum covering several different subjects such as:

a. Encephalography
b. Bronchial Tumors
c. Air Myelography
d. The Normal and Abnormal Larynx, etc.—9-12 A. M., Oct. 13 and 14.

Otologic Clinic

1. Dr. Matthew S. Ersner: Otologic Surgery—2-4 P. M., Oct. 13. Dry Clinic — 2-4 P. M., Oct. 14. Also Discussion Surgery for the Deaf (Otosclerosis).

Jefferson Hospital Unit

Plastic Surgery

1. Dr. Warren B. Davis: Maxillo-Facial Surgery—9 A. M., Oct. 13.

Gynecologic Surgery

1. Dr. P. Brook Bland: Plastic Operations—10 A. M.

2. Dr. Brooke M. Anspach: Treatment of Myoma Uteri—11 A. M., Oct. 13.

Genito-Urinary Surgery

1. Dr. David M. Davis: The Importance of Ureteral Obstruction in Urology —12 A. M., Oct. 13.

Radiology

1. Dr. Karl Kornblum: Some Important Considerations in Cholecystography —9:30 A. M., Oct. 13.

Otologic

1. Dr. Horace J. Williams: One or Two Radical Mastoidectomies — 10:30 A. M.

Orthopedic Clinic

1. Dr. Arthur J. Davidson: Orthopedic—9 A. M., Oct. 14.

Obstetrics

1. Dr. Norris W. Vaux: Sodium Amytal in Controlling the Convulsions of Eclampsia—10 A. M., Oct. 14.

General Surgery

1. Dr. Thomas A. Shallow: Paraesophageal Diaphragmatic Hernia or Carcinoma of the Rectum—11 A. M., Oct. 14.

Ophthalmologic Clinic

1. Dr. Charles E. G. Shannon: Chronic Simple Glaucoma—10:30 A. M., Oct. 14.

Philadelphia General Hospital Unit

Thoracic Surgery

1. Dr. Moses Behrend: Extrapleural Pneumothorax; Thoracoplasty—9-10 A. M., Oct. 13.

2. Dr. Richard H. Meade, Jr.

3. Dr. Rubin Lewis.

4. Dr. Albert Behrend.

Gynecologic Surgery

Dr. E. A. Schumann: Ceasarian Section —local anesthesia—9-10 A. M., Oct. 13.

General Surgery

1. Dr. J. C. Howell: Carcinoma of the Breast—10-11 A. M., Oct. 13.

2. Dr. L. K. Ferguson: Clinic on Hernia Surgery of lower rectum and anal canal—11-12 A. M., Oct. 13.

3. Dr. Hubley R. Owen: Dry Clinic-Fractures—10-11 A. M., Oct. 14.

4. Dr. P. A. McCarthy: Arterial Surgery—9-10 A. M., Oct. 14.

Dr. L. D. Englerth and Dr. S. Dale Spotts: Gastric Surgery—9-10 A. M.

5. Dr. Wm. T. Lemmon: Diseases relieved by operation on hypogastric plexus —11-12 A. M., Oct. 14.

St. Lukes and Childrens Hospital Unit

Dr. Robert J. Hunter: How to Interpret Tuning Fork Tests in Terms of Decibels. Dry Clinic—11-12 A. M., Oct. 13.

General Surgery

1. Dr. D. Roman: Operations on the thyroid gland. Cancer of the colon, cancer of the breast—9-12 A. M., Oct. 13 and 14.

Gynecologic Surgery

1. Dr. L. Averett: Vaginal hysterectomy plastic surgery—9-12 A. M., Oct. 13 and 14.

Hahnemann Hospital

THURSDAY, OCTOBER 13

General Surgery and Orthopedics

Dr. G. A. Van Lennep, Dr. John A. Brooke—9-12 A. M.

Gynecology

Dr. Earl B. Craig—9-12 A. M.

Laryngology and Rhinology

Dr. Charles B. Hollis—10-12 A. M.

FRIDAY, OCTOBER 14

Plastic Surgery

Dr. Thomas L. Doyle—9-10:30 A. M.

Urological Surgery

Dr. Leon T. Ashcraft—10:30-12 A. M.

Ophthalmological Surgery

Dr. Frank O. Nagle—10-12 A. M.

Obstetrical Clinic

Dr. Leon Clemmer—9-10:30 A. M.

Gynecology

Dr. Earl B. Craig—10:30-12 A. M.

Anesthesia demonstrations both days by Dr. James M. Godfrey, Dr. Everett A. Tyler and Dr. Henry S. Ruth.

University of Pennsylvania Hospital Unit

THURSDAY, OCTOBER 13

General Surgical Clinic

Dr. I. S. Ravdin and Staff—9-12 A. M.

Neuro Surgical Clinic

Dr. S. B. Grant and Staff: Neuro surgical operations—9-12 A. M.

Surgical Seminar Room

Dr. A. Bruce Gill and Staff: Dry clinic in orthopedics—9-12 A. M.

FRIDAY, OCTOBER 14

General Surgical Clinic

Dr. E. L. Eliason and Staff—9-12 A. M.

Genito-Urinary Clinic

Dr. Alexander Randall and Staff: Operative and dry clinic—9-12 A. M.

Neuro Surgical Clinic

Dr. S. B. Grant and Staff: Neuro surgical operations—9-12 A. M.

Bronchoscopic Clinic

Dr. Gabriel Tucker and Staff: Bronchoscopic aids in diagnosis and treatment of pulmonary suppuration. Demonstration of film and operative technic of bronchoscopy—9-12 A. M.

Gynecologic Clinic

Dr. C. C. Norris: Gynecological operations—10 A. M.

SYNOPSIS OF PAPERS

GASTRECTOMY

John F. Erdman, M.D.

Gastric Resection: A Consideration of Duodenal Ulcers, Marginal Ulcers as a Result of Operations and Malignancies.

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Motion Pictures of Human Larynx Surgical Significance in Normal and Abnormal States.

William H. Lell, M.D.

In this paper a new method of laryngeal photography is presented. By this technique the larynx is photographed by mirror laryngoscopy, thus eliminating the cumbersome apparatus previously used.

The first part consists in the presentation of the procedure employed in taking these motion pictures and a brief résumé of the important structures of the larynx. The second part is concerned with the presentation of the photographs in color of a series of human larynges.

In this series of cases, first is depicted the normal larynx, showing the motility of the vocal cords.

This is followed by pathological conditions including functional aphonia, paralysis of vocal cords, vocal nodules, Keratosis, cyst and cancer of the larynx. Conclusion:

A new simplified method of laryngeal photography is here presented, together with a series of illustrative cases.

The human larynx is a very important organ in respiratory system and should be considered as such. Early pathology in the larynx may be present without producing any symptom and unsuspected lesions are of ten discovered in the course of routine examination. Not only in thyroid surgery but all cases which are to undergo a major surgical procedure should have a laryngeal examination by a competent laryngologist.

Extrapleural Thoracoplasty. Further Experiences with a Muscle Splitting Operation.

Jerome R. Head, M. D.

Over the past decade the operation of extrapleural thoracoplasty has been gradually extended and improved. While the new operation has increased the cures from 40 to 80 per cent of those operated upon, it has also become much more difficult to perform and much more trying both to the surgeon and the patient. To avoid these drawbacks I have recently modified and readopted a muscle splitting operation which I first described in 1928. The operation is particularly useful in patients, who because of advanced years or cachexia, are poor surgical risks and for whom the more extensive procedure is particularly dangerous. Technic of 1st, 2nd and 3rd stages is described. Summary and Conclusions:

1. A modification of the operation of extrapleural thoracoplasty is described in which the required lengths of ribs are removed through multiple small muscle splitting incisions.

2. At the first stage an extrafascial apicolysis can be performed.

3. The operation has the following advantages:

a. The postoperative reaction is mini mal.

b. The collapse is produced gradually.

c. The muscles of the shoulder girdle are not transected.

d. It can be used on older persons and those who are in poor condition with greater safety than can the conventional operation.

e. The incidence of wound infections is less than following the conventional operation.

Lesions of the Cranial Nerves.

Walter E. Dandy, M.D.

The syndrome Ménière's Disease consists of recurring attacks of dizziness in which objects rotate. It is particularly distressing because of the severity of the attacks. The condition is always due to a lesion in the auditory nerve, and associated with its progress there is subtotal deafness in one ear and tinnitus in the same ear. Between the attacks the patient is perfectly well. The attacks come on without warning and without any apparent predisposing cause.

The attacks are permanently abolished by partial or total section of the eighth nerve. The operative procedure is attended with practically no risk to life or function.

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The Differentiation Between Visceral and Parietal Pain in Arriving at a Surgical Diagnosis.

William Bates, M. D.

Differentiation between real pain and referred pain.

Differentiation between parietal and visceral pain and tenderness.

Brief outline of treatment of parietal pain.

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A Critical Survey of Five Hundred Abdominal Hysterectomies.

James E. King, M.D.

An analysis of five hundred consecutive abdominal hysterectomies. Includes the indications, the pathology found, the complications, and the mortality. Comparison between the abdominal and vaginal hysterectomies.

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Surgery of Cancer of the Larynx.

Gabriel Tucker, M.D.

In a series of two hundred cases of carcinoma of the larynx it was found the growth originated in a location where the condition could have been cured in 77 per cent of the cases. When the cases were seen, however, they were so far advanced that many of them were incurable by surgery or any other means of treatment. In early cases of cancer of the larynx from 80 to 95 per cent can be cured by laryngofissure where the origin of the growth is on the cord. Cancer in other locations and cancer involving the ventricular bands or the epiglottis on its under surface if diagnosed early can be cured by total laryngectomy or excision of the epiglottis, in a high percentage of the cases. Cancer of the larynx of undifferentiated type and in locations not so favorable for surgical removal may be treated by irradiation with palliation in practically every case and a fair percentage of cure. The most important consideration in the cure of cancer of the larynx is early diagnosis. Chronic hoarseness and local discomfort must be considered as the danger signals of cancer until their cause has been proven to be some other condition.

The discussion of the subject will be limited to the surgical procedures in the diagnosis and treatment of cancer of the larynx. The technic of laryngofissure for cordal lesions and anterior commissure growths and the technic of Total Laryngectomy by Subperichondrial Extirpation of the Larynx will be shown. The presentation will be illustrated with lantern slides and moving picture demonstrations of technic (color film).

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Pharyngeal Diverticulum — One Stage Resection.

Thomas A. Shallow, M.D.

In the past, much dispute existed concerning the classification of pulsion diverticula existing in the upper alimentary tract. It is the purpose of this paper to prove conclusively, based on the author's operative experience in over one hundred cases, that pulsion diverticula

are all pharyngeal in origin and eventually require surgery.

No authentic case of pulsion diverticula arising in the esophagus has come under our observation, nor have we been able to find a report of any in the literature.

All esophageal diverticula are traction in origin and are due to peri-esophageal inflammatory disease. This type of diverticulum, except in the rare case, does not require surgical intervention.

From the above report, it is evident that pulsion pharyngeal diverticula are relatively common and their recognition should be made more frequently.

A careful analysis of the symptomatology of the cases which came under our observation indicates that noisy deglutition is the most common early symptom. This is followed by regurgitation of food, particularly at night or when the individual is lying down. Dysphagia eventually exists in all cases but usually it is a late symptom and is not present until the sac reaches a relatively large size. Hoarseness, the least frequent symptom, existed in eight per cent of our cases.

From that it is evident that any or all of the above symptoms should be thoroughly investigated by the laryngologist, the roentgenologist and the esophagologist.

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The Duodenal Syndrome Associated with Aberrant Superior Mesenteric Artery.

Felix Cunha, M.D.

Metabolic and endocrine changes, the latter usually disturbances of thyroid function, causing either gross depletion of fat in the intra-abdominal ligaments and structures, and conversely the filling in, or, rather, the storage in these same structures of a large amount of fat, can very often influence the anatomical relationship between the third portion of the duodenum and superior mesenteric artery or its branches. Because of these alterations in relationship, undue pressure may be exerted by the artery as it crosses this portion, producing intermittent partial obstruction of the duodenum followed by either a duodenal ileus or, more frequently, an irritative type of duodenitis. The modern tendency to radical and drastic dieting without adequate medical supervision has produced exactly these same changes. This duodenitis is the direct result of a continuous mechanical churning back and forth of the food mass confined in a small area, this mass being in a rather early stage of digestion, contains therefore a large amount of irritant, fibrous material or roughage acting as a direct irritant upon the surrounding mucous membranes.

Roentgenological and fluoroscopical examination of the patient in the recumbent position reveals a reverse peristalsis and a churning of the barium column back and forth within the confined area from the point of obstruction backward to the pyloric ring. This churning process can be intensified by placing the patient in a partial Trendelenburg position and can sometimes be relieved by severity of obstruction present. The latter dependent entirely on the amount of pressure exerted by the aberrant artery. The degree of mobility or conversely, the degree of fixation of the duodenum in its various portions and the relation of this upon this same syndrome is described. The conservative therapy consisting mainly of the correction of the underlying metabolic or endocrine, factors involved, is described, and stress is laid upon a proper dietary regimen. Mechanical aids by means of properly supporting abdominal belts which aid in some degree to establishing a better anatomical position are also described.

In those stubborn cases not yielding to conservative therapy, the various operative procedures which have been recommended and used in these cases are described.

The Present Status of Surgery of the Gall Bladder.

Julien C. Pate, M.D.

The Shifting of Emphasis in Surgery of the Gall Bladder.

Removal of the Stone, Removal of the Gall Bladder; Causation and Avoidance of Operation.

The Structure and Function of the Gall Bladder.

Absorptive function; evacuating action, cholesterol metabolism; inflammatory changes, analogy with the vermiform appendix.

The Pathology of Other Parts of the Biliary Tract in Disease of the Gall Bladder.

Liver, pancreas, bile ducts; chronic cholecysitis and strawberry gall bladder as related to neighboring structures; gall bladder as a focus of infection for the whole tract.

Indications for Surgery.

Importance of clinical evidence; cholecystography as a diagnostic aid; problems of jaundice; most advantageous time for operation.

Surgery of the Gall Bladder and its Sequelae.

End results of cholecystectomy in different types and degrees of disease of the gall bladder; removal of the normal gall bladder; physiologic disturbances resulting from surgery of the gall bladder; cholecystostomy versus cholecystectomy; drainage; limited value of anastomosis; substitute procedures for cholecystectomy; electrical obliteration of the gall bladder by coagulation.

Importance of the Position of the Gall Bladder in the Complicated Biliary Syndrome.

Chronic Prostatis, Its Relation to Anatomical Changes in the Prostate, Prostatic Urethra and Vesical Orifice.

David M. Davis, M.D.

The pathological anatomy of the prostate is considered in relation to prostatectomy, to trans-urethral resection, and to the effects of hormonal and other non-surgical methods of treatment of prostatic hypertrophy. The size and shape of the lobes or masses and the relationship to one another and to the vesical orifice have very much to do with the success or failure of prostatic resection. In certain prostates, the enlargement is particularly inaccessible to the resection instrument, while in others, all of it can be removed without difficulty.

The effect of non-surgical measures cannot be judged by symptomatic improvement as the symptoms of the prostatic enlargement are more or less variable, even without any treatment. The symptoms may vary from complete retention to almost normal voiding within a very few days. The reasons for this are discussed. The only permissible method for evaluating the success of non-surgical treatment is one in which actual reduction in the amount of hypertrophied tissue present can be objectively demonstrated. A method for doing this is proposed.

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The Importance of Blood Supply in Fracture of Neck of the Femur.

Fred H. Albee, M.D.

Fracture of the central portion of the neck of the femur differs from all other fractures in that blood supply to the capital fragment is entirely dependent upon the artery of the ligamentum teres, which is either torn at the time of the original trauma or occluded.

Internal fixation alone does not rectify this defect — an autogenous bone-graft peg is the method of choice for treating these fractures.

The International Congress of Military Medicine and Pharmacy (which includes all branches of medicine, surgery, sanitation and dentistry), was conceived and organized in 1921 by Col. Jules Voncken of the Belgian medical military service, and Dr. William Seaman Bainbridge, Captain medical director, United States Naval Reserve. Its primary object was the amelioration of the suffering of war and war conditions, and the more effective treatment of the sick and wounded during peace because "peacetime warfare" is ever with us—battle with the elements, accidents in mines, factories, building and construction, in the air, at sea, etc. But the scope of the Congress has broadened since its inception, and its purpose is now fourfold:

1. The codification and standardization of the lessons of the World War in medicine, surgery, and sanitation, as above stated.
2. Protection against toxic gases in warfare.
3. Protection against air raids.
4. The collaboration of international law and military medicine.

All the nations of the world are invited to join in this great movement to ameliorate the sufferings of war, to protect the civilian population, and to "humanize" war, if that word may be applied in this sense.

The central bureau of the Congress is located in Liége, Belgium and here also is conducted another branch of the daily working activity of the Congress — the International Office of Medico-Military Documentation, under the supervision of the Secretary-General, Col. Voncken. Documents, books, articles on military medical topics and other material relating to the military-medical services of all countries are collected in this office. It has a department that answers technical questions received from all quarters of the world.

The Permanent Committee of the Congress, appointed at the first meeting by the King of the Belgians, is its working and managing unit. It is composed of one member from each of eight nations — Belgium, France, Great Britain, Italy, Spain, Brazil, Switzerland, and the United States of America. Meetings of this Committee are held before, during, and after the Congress sessions, and in the years between Congress meetings, when necessary.

In 1921, the first meeting was held in Belgium, and was sponsored by Queen Elizabeth and the late King Albert the Good. The heads of the nations in which the Congress has been held, have all taken a personal interest in its objects. The Prince of Monaco invited the Permanent Committee and leaders in International law for a week's conference. "The Pact of Monaco" resulted with the following aims:

1. The organization of medical towns and zones.
2. Medical assistance by non-belligerents.
3. Medical treatment of prisoners of war.
4. Sanctions.
5. Protection of the civilian population.

This plan was presented to the International Red Cross when it met in Tokyo in October, 1934, and was accepted in principle as a practical objective to enlarge the Geneva Convention. At the meeting in London this year, part of the Pact of Monaco was incorporated in the enlarged Geneva Convention.

From July 1 to 4, 1938, meetings of the Permanent Committee and the International Office of Medico-Military Documentation were held in Luxemburg, capital of the Grand Duchy of Luxemburg. Three hundred military medical representatives of thirty-five nations participated. Major General C. R. Reynolds, Surgeon General of the United States Army, was to have presided over the meetings. Official matters detained him in Washington. In his stead, represent-

ing him and the United States Government, Dr. Bainbridge was made President. At this meeting, a medico-legal body was formed, with the Prince of Luxemburg as its head, and the Minister of Foreign Affairs of the Grand Duchy its Vice-President. It will promote the study of the protection of the civilian in time of war, and the enforcement of laws to create such protection. It is anticipated that, with the central offices located in Luxembourg, similar branch organizations will be formed in all countries of the world.

The meetings of the International Congress of Military Medicine and Pharmacy are held every two years, and have convened in Brussels, Rome, Paris, Warsaw, London, The Hague, Madrid, Brussels again, and Bucharest. Next year, for the first time, the meetings will be held in a capital other than European. The Congress has accepted the invitation of President Roosevelt to meet in Washington, May 7 to 15, 1939 (see preliminary program). It is expected that some sixty or more nations will send delegates.

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The President of the United States appointed an Organization Committee for the Tenth International Congress to be held at Washington, D. C., May 7 to 15, 1939.

Major General C. R. Reynolds, Surgeon General U. S. Army, President-Elect of the Congress.

Captain, Medical Director, Wm. Seaman Bainbridge, M.C., U.S.N.R., member Permanent Committee of the Congress.

Dr. Martin Cooley, U. S. Veterans' Administration.

Dr. Charles M. Griffith, U. S. Veterans' Administration.

Lt. Col. Edgar Erskine Hume, M.C., U.S.A.

Col. Harold W. Jones, M.C., U.S.A., Secretary General of the Congress.

Captain Wm. L. Mann, M.C., U.S.N.

Comdr. Wm. H. Michael, M.C., U.S.N.

Dr. Robert Olesen, U. S. Public Health Service.

Surgeon General Thomas Parran, Jr., U. S. Public Health Service.

Hon. Richard Southgate, Department of State.

SCIENTIFIC PROGRAM

1st Question: The Organization and Function of the Medical Services in Colonial Expeditions.

Reporters: Italy and the United States of America.

2nd Question: Probable Casualties in War and Methods of Calculation.

Reporters: Germany and the United States of America.

3rd Question: Practical Procedures for Anesthesia and Analgesia in War Surgery.

Reporters: Brazil and the United States of America.

4th Question: Organization and Function of the Military Chemico-Pharmaceutical Service.

Reporters: Argentina and Czechoslovakia.

5th Question: Emergency Treatment and Primary Apparatus for Fractures of the Jaws in War.

Reporters: England and the United States of America.

6th Question: Technical Specialization of Administrative Officers in the Medical Service.

Reporters: Mexico and the United States of America.

7th Question: Oxygen Therapy and its Practical Use with Troops on Active Service.

Reporters: Belgium and the United States of America.

Sunday, May 7, 1939

Arrival of Delegates and Members. Registration of Delegates. Assignment to hotels, distribution of information, etc., from Headquarters.

8:00 P. M. — Dinner to Permanent

Committee. Given by the President of the Permanent Committee.

Monday, May 8, 1939

9-12 A. M.—Registration (continued), distribution of documents, badges, bulletins, program, book of reports, etc., Secretary General's office, Hotel Willard.

2:00 P. M.—Meeting of the Permanent Committee.

5:00 P. M.—Reception to the Delegates and Members and their families.

9:00 P. M.—Reception by the President of the Congress. Dancing.

Tuesday, May 9, 1939

9:30 A. M.—Official opening of the Congress. Auditorium, Department of Labor.

11:30 A. M.—Introduction of the Official Delegates. Reception.

1:00 P. M.—Luncheon to Official Delegates. Willard Hotel.

2:00 P. M.—Scientific Program. Auditorium, Willard Hotel.

4:00 P. M.—Visit to Senate and House of Representatives.

6:00 P. M.—Visit to Tomb of Unknown Soldier at Retreat, Military Formation, Arlington. Decoration of Tomb of Unknown Soldier.

6:30 P. M.—Meeting of Chiefs of Delegations and Members of the Permanent Committee.

7:30 P. M. — Evening reserved for private invitations.

Wednesday, May 10, 1939

9:00 A. M. — Sternberg Hall, Army Medical Center. Scientific Program.

11:00 A. M.—Inspection of the Walter Reed General Hospital; Army Medical, Dental and Veterinary schools and Army Medical Laboratories.

12:30 P. M.—Luncheon.

2:00 P. M.—Sternberg Hall. Scientific Program.

4:30 P. M.—Tea and Concert, Sunken Gardens.

8:30 P. M. — Equitation Show, Fort Myer.

Thursday, May 11, 1939

9:00 A. M. — Auditorium, Willard Hotel, Scientific Program.

2:00 P. M. — Visits to U. S. Public Health Service, Mount Alto Diagnostic Clinic, U. S. Navy Yard, Army Medical Museum and Library, Smithsonian Institute.

6:00 P. M. — Potomac River steamer excursion to Mt. Vernon. Dinner and entertainment on board, followed by dance.

11:00 P. M.—Return to Washington.

Friday, May 12, 1939

8:30 A. M. — Excursion to Medical Field Service School, Carlisle, Pa.

11:00 A. M.—Arrive Gettysburg; one hour spent on Battlefield.

1:00 P. M. — Arrive Carlisle, Pa. Luncheon on arrival.

2:00 P. M.—Inspection of Carlisle Barracks and Medical Field Service School. Field exhibit in miniature of Medical Service. Parade and Review, First Medical Regiment at Retreat. "Barbecue" outdoors. Leave Carlisle 7:00 P. M. Arrive Washington 10:00 P. M.

ALTERNATE PROGRAM for members of the Congress not desiring to visit Carlisle. (Members will indicate visits they desire to make).

Saturday, May 13, 1939

9:00 A. M.—Trip to U. S. Naval Academy, Annapolis. Drill by Naval Cadets. Inspection of the Academy.

1:00 P. M.—Arrival in Washington.

2:00 P. M.—Field Sports, etc.

8:30 P. M. — Banquet and Formal Dance.

Sunday, May 14, 1939

9:00 A. M. — Sightseeing in Washington.

Afternoon. No Program.

Monday, May 15, 1939

9:00 A. M.—Meeting, Auditorium, Willard Hotel. Scientific Porgram. Report of the Permanent Committee: Conclusions. Ceremony of Adjournment, fol-

lowed by the opening of the Documentation Meeting.

2:00 P. M.—Arrangements for members of the Congress for visiting places outside of Washington, such as medical and industrial centers, etc. Temporary adjournment of Documentation Meeting during the afternoon.

Tuesday, May 16, 1939
Wednesday, May 17, 1939

Continuation of Documentation Meeting.

FINAL ADJOURNMENT.

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The twenty-first annual meeting of the **American Association for Thoracic Surgery** was held in Atlanta, Georgia, April 4th, 5th and 6th, under the presidency of Dr. Stuart W. Harrington, of Rochester, Minn.

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The **Societa medico-chirurgica of Bologna** met under the presidency of Prof. Vittorio Putti.

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The **Societa di gastroenterologia** met at Rome under the presidency of Prof. Cesare Frugoni. Prof. Scimone read a paper on the value of the Takata-Ara test, which he has used in 150 cases of disorders of the liver. In many instances the clinical diagnosis was confirmed by radiologic observations. If cirrhosis was present the Takata-Ara reaction was always strongly positive.

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A Joint Session of the **Associated Anesthetists of the United States and Canada, International Anesthesia Research Society, International College of Anesthetists, Eastern Society of Anesthetists and Mid-Western Association of Anesthetists** is scheduled to be held in New York City, October 17-21, 1938.

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The third **International Goiter Conference** was held in Washington, D. C., September 12th to 14th, in conjunction with the American Association for the Study of Goiter and the Medical Society of the District of Columbia. All meetings were held in the Mayflower Hotel. Dr. Harry H. Kerr, clinical professor of surgery, George Washington University School of Medicine, Washington, D. C., was chairman of the committee of arrangements.

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The **fourth International Congress of Comparative Pathology** will be held in Rome, May 15-20, 1939, under the presidency of Prof. Pietro Rondoni, director of the cancer institute and of the Institute of General Pathology of the Royal University of Milan.

Dr. Manfred Kraemer of Newark, N. J., was elected Chairman and Dr. Hyman I. Goldstein, Camden, N. J., Secretary, of the Section on Gastro-enterology of the Medical Society of New Jersey at its 172nd annual meeting at Atlantic City.

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The Fifth National Congress of the Association of Artist Doctors met at Sabaudia, Italy, September 10th to 12th. The program included a trip from Rome to Littoria, Saubaudia, Terracine and Aprilia as well as addresses by technical experts, hydraulic engineers and sanitary engineers to illustrate the Work Projects.

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The 850th Anniversary of the University of Bologna will celebrate by entertaining the Italian Society for the Advancement of Sciences.

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The Societa Piemontese of Surgery met at Turin with Professor Uffreduzzi presiding. Prof. Bobbio spoke on sacrococcygeal cordoma. He stated the tumor has a tendency to recur in the same place as it did originally and also to produce metastases.

The third Congress of the Brazilian Society of Orthopedics and Traumatology was held in Recife, Pernambuco, Brazil, July 1-3, under the presidency of Dr. Luiz Barros, Lima, professor of orthopedic surgery, Faculty of Medicine of Recife. The principal subjects discussed were "Fractures of the Ankle" and "Sequelae of Infantile Paralysis." The next congress will be held in Sao Paulo in July, 1940, and the subjects to be discussed are "Fractures of the Spine" and "Lumbar Pains."

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September Medical and Scientific Meetings include the **first congress of the International Society on Criminology at Rome;** the **11th International Congress on the History of Medicine** at Zagreb, Belgrade, Sarajevo and Ragusee; the **Seventh Conference of the International Association on Preventive Pediatrics at Vienna** and the **First International Congress on Legal Matters at Bonn;** the **Third International Congress on Private Sanitoriums and Health Resorts at Berlin;** the **Second Congress on Renal Insufficiency at Evian;** the **sixty-second congress of the French Association for the Advancement of the Sciences, at Arcachon;** the **Swiss Orthopedic Journees;** the **Fifth Congress of the Latin Medical Press at Lisbon.**

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The American Congress of Physical Therapy held its seventeenth annual session and the American Occupational Therapy Association will hold its twenty-second annual meeting in Chicago. Dr. Frank H. Krusen of Rochester, Minnesota, presided at the Congress of Physical Therapy and addressed the meeting on "The Contributions of Physical Therapy to Medicine." Dr. Joseph C. Doane of Philadelphia, presided over the meeting of the Occupational Therapy Association.

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The sixth annual Congress of the Association for Photographic and Cinematographic Documentation in the Sciences will be held from October 6th to 8th in Paris. At the annual meeting of this society held recently, Dr. Warren T. Vaughan, Richmond, Va., was chosen president-elect and Dr. Harry L. Alexander of St. Louis, was installed as president. Dr. Robert L. Benson of Portland, Ore., was elected vice-president and Dr. James Harvey Black of Dallas, Texas, secretary. Next year's meeting will be held in St. Louis.

Obituaries

Dr. Adolf Kronfeld, Editor of the Wiener Medizinische Wochenschrift, died in Vienna, June 14, 1938, at the age of 77 years.

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Dr. Frederick Tilney, New York, since 1914 professor of neurology and neurotherapy at Columbia University College of Physicians and Surgeons, New York, died August 7, aged 62.

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Dr. Pol N. Coryllos, New York, aged 57, died in the Manhattan General Hospital of lobar pneumonia and cerebral hemorrhage. He had been active in medical circles both here and abroad for many years.

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Sir David P. D. Wilkie, professor of surgery, University of Edinburgh; surgeon to the Royal Infirmary, Edinburgh; member of the Medical Research Council; died in London, August 29, aged 56.

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Alexander MacPhail, M.D. Glasg., F.R. F.P.S., died at the age of 65 years. He was a distinguished anatomist and became dean of the faculty of medicine at St. Mungo's in 1900. Following this he held important positions at King's College, Charing Cross and St. Bart's.

Dr. George E. de Schweinitz, President of the American Medical Association in 1922-1923, died at his home in Philadelphia, August 22. Early in his career he taught therapeutics in the Medical Institute of Philadelphia, lectured on medical ophthalmoscopy in the University of Pennsylvania and Philadelphia Polyclinic and College for Graduates in Medicine. He was clinical professor of ophthalmology at Jefferson Medical College for a time. He was identified with numerous medical groups and during the World War was appointed to the Council of National Defense in 1917 and commissioned a major on April 9, 1917, following which he became a lieutenant colonel in May, 1918, and went overseas in October. In 1919 he was commissioned colonel and in 1922 brigadier general of the Medical Reserve Corps.

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Dr. F. J. Karl Sudhoff, Professor of the history of medicine at the University of Leipzig and founder of the German Society for the History of Medicine, died on October 14. He was eighty-four years old.

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Dr. Franz John A. Torek, noted surgeon, age 76 years, died Sept. 19 in Vienna of bronchopneumonia.

Book Reviews

Postgraduate Surgery, Vol. III. Edited by Rodney Maingot. Pp. 5,584 with 1,015 illustrations. N. Y., 1937. D. Appleton-Century Co. (printed in Great Britain). Three volumes sold only as set at $45.00.

THE third, final volume of this classical work on Postgraduate Surgery under the able editorship of Rodney Maingot is a worthy companion to the previous two volumes. It may be stated at the outset that the volume is a veritable fountain of worthwhile information and its title "Postgraduate Surgery" fully warranted. It is thorough and up-to-date. The opening chapter on medical aspects of surgery (R. Sleigh Johnson) is replete with important information. The chapter on Hernia (W. H. Ogilvie) consists of a comprehensive résumé on questions related to hernia and its treatment. It is admirably written. The contribution on Plastic Surgery (T. P. Kilner) is of equally high type. It would, perhaps, be better to recommend a simpler form of mammaplasty than that of Biesenberger which is rather complicated. Biesenberger's statements anent lactation are questioned by many authors. Also, the credit for free transplantation of the nipple and areola ascribed to Dartigues are claimed by another. But these minor observations fade into insignificance compared with the splendid general text embellishing this chapter. The contribution on Obstetrics (A. W. Bourne) is timely, for the general surgeon should be acquainted with modern methods in vogue in every branch of surgical endeavor should he be called upon in emergencies. The chapter on Cardiovascular Surgery (A. J. Cokkinis) encompasses important material from time honored operations to the newest work in heart surgery. Claude S. Beck's contributions are ably presented. Menegaux analysis of Matas' operations would have been apropos here for Menegaux has ably questioned the value of Matas' procedures in aneurysm and analyzed their practical value. One of the outstanding chapters of the work is that of the lymphatic system by Rodney Maingot. This reviewer knows of no other work wherein the pathologic entities affecting the lymph apparatus and their treatment are discussed so thoroughly and in such masterly fashion. A veritable font of information is offered by the subdivision on tuberculous glands of the neck; it is painstakingly prepared and is of great practical importance to every progressive surgeon both from a didactic point of view and from the standpoint of therapy both non-surgical and surgical. W. Sampson Handley augments this chapter with an authoritative contribution. His mature experience on dissemination of malignant disease is illuminating. P. M. Bahr describes elephantiasis and Sir Humphry Rolleston, Hodgkin's lymphogranuloma. It seems that Maingot was determined to embody in this splendid work all that is known of the lymphatic system. Witness also, Charles R. Box's contribution to glandular fever; R. Sleigh Johnson's differential diagnosis of lymph gland enlargement and the "thymus" as well as a chapter on "status thymolymphaticus. In Volume II there was a section on orthopedics; the present

volume contains additional chapters (St. J. D. Buxton) on amputations, operations on joints and tumors of bones (the latter written in conjunction with H. L. C. Wood). Advanced methods of orthopedic endeavor are replate here. This is equally true of the contributions on affections of the eye and ophthalmic operations (F. A. Williamson Noble) as well as surgical entities of the ear (F. W. Watkyn-Thomas) and of diseases of the nose (F. J. Jory). H. J. Cann offers a well systematized and thorough exposé of endoscopic methods in surgery which forms an excellent introduction to the chapters to follow. Malignant tumors of the pharynx and larynx (Lionel Colledge), tonsils and adenoids (Charles Keough) as well as affections of the tongue, mouth and lips (Stanford Cade) are thoroughly entered into. The chapter on Diseases of the Esophagus and Diaphragm is ably presented by Lawrence O'Shaughnessy while Cecil P. G. Wakely contributes a chapter on the mandible; this is divided into two sections, the first dealing with injuries, excluding fractures, and the second with odontomas. It is concise, well organized and lucidly illustrated. There are also chapters on fractures of the mandible (W. Kelsey Fry) and maladies of the teeth (C. Bowdler Henry). Chapter 21 deals with venereal disease (A. Malcolm Simpson). Physical medicine is presented by Sir Robert Stanton Wood and deep X-ray therapy by Walter M. Levitt. This opus magnum concludes with some aspects on general surgery embracing a variety of subjects: shock, continuous drip blood transfusion (H. L. Marriott and A. Kekwick); gangrene, burns, perianal suppuration, pilonidal sinus, lumbar puncture and finally a valuable chapter on some neurologic and psychiatric aspects of surgery by T. Rowland Hill. One who has labored in the field of surgical literature can appreciate the tremendous amount of work embodied in Rodney Maingot's successful undertaking. His well informed co-authors add additional lustre to this brilliant achievement. The index of the work is thorough and the illustrations excellent. For the general surgeon desirous to be abreast of the times of surgical progress, the specialist who is seeking information in his chosen branch will find this work invaluable. It should find its way to every library of every progressive surgeon. The classics of their day, (Dennis, von Bergman, Kocher, Keen and others) have served well when at their zenith and contain valuable information which will always be standard but Maingot's Postgraduate Surgery is a modern work which sharply contrasts the surgery of days gone by and surgery of today and side by side with the masters of yore will not be displaced for many years and will always remain classic. Thorek.

Diseases of the Thyroid, Parathyroid and Thymus. By André Crotti, M.D., F.A.C.S., L.L.D., R.I.C.S. Third Edition, 1129 pages, 262 illustrations, 39 plates in color. Lea and Febiger, Philadelphia, 1938.

THIS work is based on the author's observation of about 18,000 non-surgical goitres and about 9,000 thyroidectomies. His rich experiences in the clinics of Kocher of Berne and Roux of Lausanne and as Associate Professor of Anatomy and Clinical Surgery of the Ohio State University coupled with his original contributions to surgical literature renders this work authoritative. It encompasses a profound study of the parathyroid, thymus and particularly the autonomic nervous system. The original researches of the author which covers a span of 23 years (1910-1933) is an illuminating and original contribution of much merit. It expounds the infection theory of goitre and sets forth the reasons why the iodine deficiency theory cannot be regarded as the primary cause of goitre. A thorough study of the interrelationship of the various endocrines is

presented in a masterly manner and is an outstanding analysis and thorough digest of the literature coupled with the author's observations and deductions. The endocrines playing so important a role in the production of numerous clinical entities is analyzed in a scholarly manner. The author's views on so-called "benign metastasizing goitre" which was controversial since the time of Cohnheim (1878) is analyzed. The anatomy, pathology, physiology and correlated subjects are embraced in the various chapters of the work. "Circular goitre" so little mentioned in current texts and so often encountered to the distress of surgeons is ably discussed and illustrated in Chapter XII. The outstanding original contribution of the author on the etiology of goitre in which he shows that he has isolated a goitre fungus from human goitre material which he also found in the water supply of endemic foci and with which he reproduced goitre in dogs and which he has proven to exist in cabbage. He brings this lucid thesis to the reader in convincing text augmented by admirable microphotographs and other illustrations. These seem to prove that Crotti has realized his erstwhile hypothetical thoughts by verifying that the primary cause of goitre is to be found in a *contagium vivum*. In this case, the goitre fungus which in all probability belongs to the genus Alteraria of the order of Hyphomycetes. He has demonstrated it by using intravenous injections of cabbage fungus into rabbits which produced goitre in these animals within three weeks. It is significant that in this connection Chesney and others were able to produce goitre by feeding animals with cabbage. He furnishes experimental and clinical data which seem incontrovertible that goitre fungi and cabbage fungi are identical and that iodine deficiency cannot be proven to be the cause of goitre in experimental animals and furthermore that iodine fed animals were not protected against the occurrence of goitre. A thorough analytical study of this chapter will not fail to convince the reader that Crotti has fulfilled Koch's postulates for he has been able to isolate a living organism from the goitre of patients, cultivated it, and was able to produce goitre in animals with it and was finally successful in reclaiming the organism from the animals experimented upon. Thus his conclusions that goitre is produced by a fungus transmitted to man by drinking water and vegetables (contagium vivum theory) seem to be substantiated. The work is divided into fifty-one chapters. The clinical manifestations of diseases of the thyroid, parathyroid and thymus, the technic of the operative procedures including pre- and post-operative care and the meeting of complications pre- and post-operatively is painstakingly and analytically entered into. The work abounds in valuable therapeutic hints. It offers valuable guide posts to successful thyroid surgery and is pointing the way how to perform the various surgical procedures and how to avoid pitfalls. All in all the work is written in a masterly manner by a master and will be received enthusiastically in its present augmented form, as have been received the two previous editions of this classical and epoch-making contribution to medico-surgical literature. Every student, medical man, general surgeon or specialist will be proud to possess this contribution in his library. The work concludes with a most thorough bibliographical reference, author's index and subject index which has been most painstakingly prepared and left nothing to conjecture. Thorek.

Handbook of Orthopaedic Surgery. By Alfred R. Shands, Jr. In Collaboration with Richard B. Raney. 593 pages, 169 illustrations. C. V. Mosby Co., St. Louis.

THIS handbook is written for the medical student and general practitioner outlining the fundamental facts and principles of orthopaedic sur-

gery. It is a successful presentation. It is a composite of a number of teachers in orthopaedic surgery. Unfortunately, such important subjects as fresh fractures, plastic technic and modern orthopaedic apparatus have been omitted. The apology for this as given by the author is that the work is essentially an elementary text book and that the bibliography refers the reader to subject matters in which they may be interested. The subject matter is divided into twenty-four chapters in accordance with a report on the Committee on Undergraduate Instruction in Orthopaedic Surgery of the American Orthopaedic Association. Sixteen of these are arranged upon a basis of pathology while seven are arranged according to the anatomic region involved. There is no mention of historical facts which this reviewer believes are very important in teaching students. A great many orthopedists contributed to the work. The illustrations are pen drawings and successfully depict subject matter. The reproductions from extra plates are unfortunately very poor. The bibliography and index are thorough. The work will be of great aid as an elementary text book for students in orthopedic surgery.

Horace Turner.

New Contributions to Endocrinology. By R. Rivoire (Formerly Chief of Clinic, Paris Faculty of Medicine; Physician to the Hospitals of Nice). 3rd ed., rev. and enl.; 264 pp. Paris, Masson, 1937.

THE first edition of this interesting work appeared in 1931. In opening the present 3rd edition the author remarks upon "the immense progress achieved in endocrinology during the decade since his first publications in the field." With characteristic French pride he refers to the satisfaction from the proportionately large contributions, physiological, biochemical and clinical, made by French physiologists, physicians and surgeons. Ten years ago theories were prominent, their bulk now, gratifyingly reduced or wiped out by ascertained, relevant facts. The first 57 pages expound developments in parathyroid endocrinology. From the fatal tetany formerly inevitable in laboratory dogs after parathyroid removal, valuable and gratifying control of experimental results has been secured by ascertaining the mutual relations and interchanges of the calcium and the phosphorus content in the blood. American physiologists are credited with "profound analyses of the mineral interchanges involved in studying minutely the influence of food regimens upon the phosph-calcic exchanges in tetanous animals." The 8th and final chapter of 59 pages concerns momentous developments in endocrinology of the hypophysis, with their significant influence upon the thyroid. Intervening chapters set forth suprarenal, pancreatic, thymic, endocrine problems and experiments, together with those of the sex glands, male and female. Much discussion of Addison's disease occurs in connection with cortico-suprarenal discoveries. The efficient salt solution therapy evolved was first published by Professor Achard and the present author in the author's first edition, 1931. Space is also given (p. 98) to "a recent discussion in Chicago in the *Central Society of Clinical Research,* where Snell and Kepler on the one side, and Hoffmann and his pupils on the other, reported uniformly favorable results obtained with the cortical extract of Kendall, and that of the Wilson Laboratory. Kendall, however, had never observed cortical resistance to his extract in Addison's disease." Dr. Rivoire declares impartially for both extracts, adding a third from Amsterdam, and regretting the absence of an "active" French preparation. No bibliography appears in this work; authors are referred to merely by name, though some are dated as "Zondek, 1931," "Iscovesco, 1912," "Smith, 1921."

Le Ernie Crurali Della Guaina Vasale. By Dott. Armando Trivellini, Assistente, Clinica Chirurgica Generale Della R. Universita di Milano. Bologna: L. Cappelli—Editore, 1935. Pp. 126, 16 illustrations.

THERE are many rare and special types of hernias of the crural region which have been rather imperfectly and incompletely described in the literature. In this monograph the author deals with that known as the vaso-lacunar variety of crural hernia which he thinks normally can only be intravaginal. This type of hernia is definitely manifested by the presence of a hernial sac in front of, behind or lateral to the femoral vessels. It thus comprises two sub-varieties, the prevascular and the retrovascular; the former includes the vasculo-infundibular, the median (in the venous lacuna) and the lateral (in the arterial lacuna).

The clinical literature is reviewed and several puzzling anatomo-pathologic conditions are cleared up.

The monograph is a very interesting contribution to the literature of the rarer types of hernia occurring in the inguinal and crural regions. Thorek.

Emergency Surgery. By Hamilton Bailey, F.R.C.S.; Surgeon, Royal Northern Hospital, London; Surgeon and Urologist, Essex County Council; Surgeon, Italian Hospital; Consulting Surgeon, Glacton Hospital; External Examiner in Surgery, University of Bristol, etc., etc. Third Edition. John Wright and Sons, Bristol and London, 1938. 852 pages, 816 illustrations.

THE meteoric rise of Bailey's Emergency Surgery on the surgical horizon in so brief a period bespeaks its just popularity and worthwhileness. It obviously is the most widely read practical surgery written in English. In its present form one observes a great many revisions which are up-to-date, thorough, crisp in style and pointed in teaching. The volume is noteworthy for its lack of padding. Bailey speaks with authority. His remarks are garnered from his vast storehouse of experience and keen observation. The book is brimfull of valuable suggestions and practical hints. As a guide to all confronted with problems arising in emergency surgery the work is invaluable. At the end of each chapter one finds bibliographic references. Only the important factors pertaining to a surgical entity are stressed. His "golden rules" are a joy to read and invaluable guides. This reviewer had the privilege of presenting his impressions of the second edition of this classical work. He is charmed with this new form. The augmented illustrations are of the same fine quality which characterize his previous editions. Some excellent color plates embellish the text. The general make-up of the book is beyond criticism. There are admirable chapters on suppurative mastoiditis and its complications, as well as intracranial suppuration, by Eric Watson Williams, surgical emergencies of the eye and orbit are ably handled by Humphrey Neame. All in all Mr. Hamilton Bailey should be congratulated on the culmination of this excellent effort. The book will be welcomed, this reviewer feels confident, not only by medical students and junior surgeons but even the most experienced surgeon who will find hints of much practical value in its pages. A comprehensive and thorough index completes the work.

Thorek.

Plastic Surgery of the Nose, Ear and Face. By Dr. Victor Frühwald. Translated by Geoffrey Morey, M.D., B.S. (Adelaide), D.L.O. (London). Wilhelm Maudrich of Vienna, 1932. 80 pages, 88 illustrations.

WHAT the author has set out to accomplish, in this short volume, he has done very successfully. This reviewer knows of no other text of as few pages as that of Fruhwald that is so concise and meritorious a contribution to the literature of plastic

surgery. The text is excellent, free from "padding." The subject matter of the book sets forth only that which is promised in the preface and certainly makes up not only a fine collection of lectures for students but a fine primer of the more common surgical procedures in plastic surgery for the less initiated than the specialist. The drawings and illustrations embody the neatness and preciseness of men who can, in a few words, sum up the essence of a message. In fairness to the present status of plastic surgery, and in line with logical critique, it is permissible to suggest that it may have been more or less discarded by all those initiated into the plastics of the human face. Her procedures are generally looked upon as insufficient, if at all dependable. In lieu of the foregoing it may have been better to enlarge upon plastics of the eyelids or comment on work of Burian of Prague, in this connection, or, possibly, even devote a few pages to cosmetic surgery of the lip and chin. The book is beautifully bound, printed on fine paper, and the print is of a size and type which not only make it easily readable but makes the pages exceedingly neat and well appearing. The translation into English is very good and the book as a whole can hardly be excelled, except to be brought up to date.

John F. Pick.

Der Meniskusschaden. By Docent Dr. Hans Schaer, Universitaets Klinik, Zúrich, Switzerland. George Thieme, Leipzig, Germany, 1938. 156 pages, 55 illustrations.

THE growing frequency of lesions of the semilunar cartilages of the knee joint is a phenomenon brought about by the growing interest of the public in the sport activities and the fact that in many states a compulsory accident insurance for working men is provided, which means that all industrial cases of lesions of the knee joint are reported.

The work of the author illuminates and concerns all phases of the lesions of the semilunar cartilages of the knee joint and contributes greatly to the clearing up of many points which are still under discussion.

The anatomy and physiology of the meniscus as well as the pathology and mechanism of the lesions is excellently explained in the introductory chapters and a complete list of all the diagnostic signs and means of diagnosis is given. Unfortunately, in spite of all the progress which has been made in this respect, the author does not hesitate to emphasize that we have not yet reached the point where an absolutely correct interpretation of lesions of the semilunar cartilage can be made.

Discussing the treatment, the conservative treatment is mentioned first and while in all probability not laying too great stress on its reliability as far as results are concerned, the author recommends it for trial in fresh lesions. Whether, however, this trial of the conservative treatment is of a real advantage must be left open for discussion; at best it seems only a postponement of the operative treatment until the second attack of dislocation of the injured meniscus takes place.

The operative technique of the resection of the semilunar cartilages is very minutely described, including the after treatment, and the author emphasizes that he is always in favor of a complete removal of the injured meniscus. This seems to be indeed a widely accepted good policy to avoid subsequent mechanical complications. Otherwise the author's technique could be in some respects more simplified without sacrificing anything as far as a good permanent result is concerned. The final result of the successful operation is probably, in most of the successful cases, a regeneration of the meniscus.

A number of very interesting questions is discussed by the author in the second section of his work dealing with the pathological anatomy of the meniscus lesion. Here he demonstrates that it is really impossible in most of the cases to find out whether an injured meniscus was healthy (normal) before the injury occurred or whether it was weakened so that a comparatively slight accident was able to injure it. He takes into consideration that during an early age (middle of the twenties) changes in the appearance and structure of the meniscus appear which are due to aging, respectively the normal wear and tear due to function, while other changes due to constitutional causes (rheumatism, rickets, arthritis deformans, etc.) may be observed in all ages. And to make matters more complicated, in many cases the latter may be superimposed to the former. The comparatively large number of cases which he quoted in this respect, outside of their special interest, furnish food for thought and further investigation.

The third section of the work deals with the evaluation of the meniscus injuries mainly as far as accident insurance is concerned. This problem which is quite complex is very skillfully handled and analyzed with special reference to the legal practices of the Swiss and German courts.

The last chapter of the work deals with meniscus lesions in knee joints afflicted with arthritis deformans and also lesions incurred

during sport activities. Many interesting features are brought out in this last chapter leading further to other questions which at the present time have not even reached the stage of discussion.

Attached to the work is a literature reference list containing over 500 single items.

To conclude, it can only be said that the entire subject is presented by the author not only in a very interesting but also extremely instructive manner which makes it valuable not only for the general but also the orthopedic and industrial surgeon.

Frederick Mueller.

Thoracic Surgery. By Ferdinand Sauerbruch and Lawrence O'Shaughnessy. Wm. Wood, Baltimore, 1937. 360 pp., col. pl.: I-XV; 215 illustrations.

THE present work is the first edition in English which represents Sauerbruch's 5 preceding German editions (1918-1930), the initial edition after the World War as the first comprehensive treatise on thoracic surgery.

Almost a dozen brilliant surgeons of the latter half of the 19th century had performed isolated and startling operations on the thorax. But until some "safe and simple means" was devised "for maintaining respiration while the chest was laid wide open, with one or both lungs exposed to direct atmospheric pressure", no systematic development or extensive practical application of thoracic surgery, could occur. The introduction of differential pressure anesthesia in 1904 made such developments both safe and practicable. Dr. O'Shaughnessy's version in English embodies the best characteristics of the previous German versions, and at the same time summarizes or amplifies other significant contributions of the last ten years.

Survey of the contents throws into logical perspective the concepts and technique of the work. The first 6 chapters emphasize: The Function of the Lungs and General Diagnosis; the General Technique of Thoracic Operations, Control of an Open Pneumothorax, The Technique of Thoracotomy and Post-operative Treatment. The 10 following chapters are concerned with the surgery of special areas: the chest-wall, the pleura, the lung, the heart and pericardium, mediastinal vessels, thymus, thoracic esophagus and the diaphragm, with special exposition of the surgical treatment given to pulmonary tuberculosis and cardiac ischemia. Bibliography represented in these presentations is developed separately by chapters (21 pp. *in toto*); there is an inclusive Author Index and a comprehensive Subject Index (10 pp. in all) of indispensable student and expert value. 15 full-page color-plates enhance the scientific visualizations constantly called for by the text, supplemented also by 215 illustrations: photographic, radiological, hand-sketched, micro-histological interpretations. Such impressive illustration calls for heavy glazed paper but the edition as a whole is substantial rather than heavy to hold—desiderably important for its necessarily constant users.

Thorek.

Pathological Technique. By Frank Burr Mallory. Phila. and London., Saunders, 1928. 434 pp. 14 illustrations.

THIS work is "a modern presentation of accepted *pathological techniques*", retaining, the author hopes, the best of the past in technical methods, and adding only the most promising methods of the present. "It is intended for pathologists in hospital laboratories and medical schools, for students and practitioners interested in pathology, and for technicians trained in pathology." The author conceives the pathologist's work as of two types: the practical and the ideal. When concerned with type 1, he takes tissues as they come, doing his best with them, under pressure of rush orders; under type 2 conditions, his work has become a joy. His ideal is: absolutely fresh tissue perfectly fixed in various reagents and stained by the best methods; he devotes himself to the study and interpretation of the lesions present, every opportunity to understand them having been accepted by him.

The subject is treated in three parts, comprising 19 chapters. Part I includes General Materials and Histology, 10 chapters being required for Laboratory Equipment and Methods. Part II develops Special Methods; The Cell and Special Cells and Tissues, treated in chapters 11 and 12, with Special Organs the extended concern of chapter 13; Bacterial Stains and Miscellaneous Infectious Agents close this second section. Part III is occupied with Autopsy Methods, the Postmortem Technique of Virchow being chosen for detailed exposition, with Saphir's *en masse* method, Ghon's and Rokitanski's briefly sketched for purposes of comparison. Preservation of Gross Specimens and Their Photography, with one *Addenda* chapter comprise the closing three.

The Bibliography includes 251 references representing 162 authors. There are 27 important pages of index.

Thorek.

A Short Practice of Surgery. By Hamilton Bailey, F.R.C.S. (Eng.) and R. J. McNeill Love, M.S. (Lond.) F.R.C.S. (Eng.). 996 pages. 4th edition. 818 illustrations of which 109 are colored. H. K. Lewis & Co., Ltd., London, 1938.

THE reputation of the authors as writers on surgical topics at once makes it apparent that the writings are authoritative. This becomes apparent even upon a casual perusal of the work. Their contributions to surgical literature are not new to American students of surgery. Their previous practical texts are well known. This is evidenced in the present volume which is printed in its fourth edition. One wonders how so much worthwhile and practical material can be presented in a volume of less than 1000 pages which are replete with information on surgical topics. Forty-three chapters encompass this work which the authors call "short practice". It certainly is "long" in value. One is impressed with the painstaking elimination of "padding" and the stressing of essentials in all of the chapters of the work. The illustrations are particularly well executed. The colored plates embellishing the text are the present day acme in color photography. To offer a critical review of this work is a difficult task because the text and the presentation of the subject matter are so nearly perfect that one must conclude that the book is one of the best presentations, in brief form, obtainable. While the subject matter discussed is not entered into very extensively the reader is compensated for such brevity with a succinct presentation of the various subject matters; pathology, clinical features and treatment of the factors germane to the subject presented. The index is exceptionally well prepared, practical and thorough. Not alone is this work of great value to the student but the busy surgeon, and general practitioner as well will find the work invaluable. This edition will undoubtly find its way to the library of every progressive student of surgery. This reviewer can only repeat what has recently been said elsewhere about the authors' work for example: "There is much to praise in this splendid volume and little to criticize".

Thorek.

Plastic Surgery. By Arthur Joseph Barsky, M.D., D.D.S. 355 pages with 432 illustrations. W. B. Saunders, Philadelphia and London, 1938.

THE author endeavors in this work to evaluate clinically the matters described. It is divided into sixteen chapters. The opening chapter an introduction on the general principles underlying plastic operations, psychological consideration, preoperative preparation, choice of instruments, suture material, anesthesia, etc. The chapter on skin grafts is very well handled and the various types of grafting lucidly described. Transplantation of tissues other than skin also receives adequate and thorough discussion. The chapter of treatment of burns and frost bites contains up to date information as does the chapter on scars and keloids. The arrangement of regional plastics is practical. The arrangement of the bibliography after each chapter is a particularly valuable addition since the various methods alluded to in outline form may be looked up by the interested reader in the original contribution of the respective author cited in the bibliography. Throughout the work, one is impressed with the thoroughness of its presentation and up-to-dateness. However, some procedures are somewhat too abbreviated (cosmetic meloplasty, pages 246-247 and plastics of the breast, pages 279). The latter deals with the Biesenberger procedure which in this reviewer's opinion is the most complicated and least practical. The chapter on the orthopedic aspects of plastic surgery is excellent, lucidly describing the problems involved, and offering valuable hints. This is also exemplified in Chapter 12 on fractures of the facial bones. The illustration are well executed. A general index concludes the work. All in all, the volume can be highly recommended to students, general surgeons and those particularly interested in the problems involved.

Thorek.

Text-Book of Experimental Surgery. By J. Markowitz. Wm. Wood, Baltimore. 527 pp., 330 illustrations, 1937.

THE influence of laboratory experimentation upon surgery in the past fifty years has been of first importance in surgical advance. Much of the knowledge of asepsis, antisepsis and anesthesia has been obtained, controlled and tested in this way. Some of the major accomplishments of experimental surgery and the detailed procedure of results gained, are given in this book. The author hopes that it may become a contribution to the pedagogy of surgery and surgical craftsmanship and he quotes W. J. Mayo's "thoughtful remark" that "in medicine, understanding must precede belief". He points out, too, "that the science of experimental surgery in reality is a branch of experimental biology, being concerned with the effects of deliberately altering the anatomy of a higher animal". The technic used, however, resembles that of the

clinical surgeon, so the name "experimental surgery" is to the author fair enough. 29 chapters are none too many for the exposition of such significant material. The authors quoted require 8 index pages and the Subject Index, 10 pages. The bibliography (placed at the end of every chapter) summarizes into 615 references, comprising the contributions of 518 authors during the truly tremendous developments of the last 50 surgical years. Yet the book is not bulky nor heavy to hold, though the paper has to be highly glazed to bring out the 330 illustrations, largely reproduced from hand-drawings to facilitate the educational purposes of the author's achievement. He did not amass these references merely as such, nor for diligence in compilation. His own experience, recorded in numerous monographs, shows his competence as an operator, the citations as germane to his purposes and hopes for the work, and as a perspective of the values the student must acquire for himself.

Keroht.

Greffe des Glandes Endocrines. By Serge Voronoff. 286 pp., 96 colored plates. G. Doin & Co., Paris, 1939.

AT the Twenty-fifth Congress of the Association of French Surgeons, in 1912, Voronoff reported his results of ovarian transplantations which he followed since 1910. Thus his work with endocrine transplants covers a period of more than 27 years. Over such a long period he can fairly well make up his mind, based on actual observations as to the merits or demerits of any method. Thus he points out: that the 2000 transplantations "do not represent 2000 successes but equally they do not represent 2000 failures." The work is divided into ten chapters. In the first, the author discusses the material utilized for ovarian transplantation. In the second, he formulates the fundamental principles underlying endocrine transplantation. He stresses that: (1) a transplanted gland should be situated in the exact environment which has been destined for it by Nature; (2) thorough and meticulous scarification of the region which receives the implant is a *sine qua non;* (3) transplanted tissue must not exceed one-half cm. in thickness, which represents the extreme limit; and (4) meticulous removal of the transplant from the donor immediately before its implantation into the properly prepared anatomical bed of the recipient. Chapter III encompasses a discussion of the general indications for endocrine gland transplantation and describes endocrine glandular tests. In the fifth chapter, the author evaluates the

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results obtained in his experience which extend over a quarter of a century. Chapter VI and the last five chapters are devoted to a discussion of the technique embracing anesthesia of the donor and recipient, thyroid transplants, parathyroid transplantation, ovarian grafts, photographs, microphotographs, histologic drawings and colored drawings. The latter are exceptionally well executed. All in all, the material is well presented and offers interesting and informative reading. It can be warmly recommended to those interested in endocrinology and the subject matter under discussion. The text is lucid in the exposé of the subject matter and throws much light on the author's experimental and clinical studies.

Thorek.

Siebzehn Jahre, Strahlentherapie der Krebse: Zürcher Erfahrungen, 1919-1935; von Hans R. Schinz und Adolph Zuppinger, Mit 95 Abbildungen und 213 Tabellen: Georg Thieme, Verlag, Leipzig. Price: Paper cover, 32 R.M., bound in cloth, 34 R.M.

THE book is a summary of the therapeutic results of "Zürcher Röntgeninstitut am Kantonsspital" from 1919 to 1935. The authors have included a brief review of the incidence of cancer in the city of Zurich and have described in some detail the organization of the institute and the technique of radiotherapy employed there.

The distribution of cases treated in this institute, according to the location of the tumor, is somewhat unusual, due to the fact the gynecological and skin clinics maintain independent departments of radiotherapy apart from that of the Röntgeninstitut. Accordingly, 44 per cent of the cases of cancer treated at the institute are of digestive tract origin, 16 per cent are breast cancer, 10 per cent in the upper air passages, while only 3 per cent are cancers of the skin, and 1 per cent cancers of the uterus.

Of the 2,529 cases constituting the basis of this report, 24 per cent were first seen in an operable stage, the remainder were inoperable. Twenty per cent of the cases were treated by some combination of radiotherapy and surgery; 80 per cent were treated by radiation alone. In the latter cases a curative attempt was made in 48 per cent, while palliation only could be hoped for or planned for the remaining cases.

Twenty-five per cent of all the cases remained symptom free for at least one year following treatment, 17 per cent for at least three years, and 13 per cent for at least five years.

The best results were obtained in the treatment of cancer of the skin, lips, ears and orbital region, parotid gland and sarcoma of the soft parts (over 50 per cent remaining symptom free for at least one year). Moderately good results were obtained in the treatment of cancers of the oral cavity, larynx, breast, male and female genitalia (30 to 40 per cent). The worst results were encountered in the treatment of tumors of the esophagus, bronchi, lungs and pleura (0 to 2 per cent).

Exact statistics demonstrate effectively the close relation between the technique of radiation employed and the therapeutic results; with improvements in technique the one year freedom from disease for tumors of certain locations rose from 12 per cent to 30 per cent, and the five year freedom from disease increased from 8 per cent to 16 per cent. Of the 83 per cent of the cases in which cure was obtained, a favorable palliative effect took place in 54 per cent.

The importance of this book depends on the long period of personal observation of the many cases treated by the authors; it is an account of their personal experiences and is of value because of their sincerity in the detection and presentation of their errors and because of their careful estimation of a wealth of clinical material.

Robert A. Arens.

Autopsy Diagnosis and Technique. By Otto Saphir, M.D., London, Paul Hoeber; New York City, Harper (Medical Book Dept.) 1937. 342 pp. 65 illustrations.

THE respect, dignity and scientific appreciation shown in this professional manual for the dead body, can only enhance esteem for the living body and the worth of human life. The five experts cited in the preface "for their interest and time in going over the manuscript" and the Foreword of Dr. Hektoen — himself an authority in postmortem examination—are advance guarantees of the work's scientific accuracy and reliability in subject matter and method. The author himself has paramount gifts of style, in the simplicity, clearness and directness, characterizing scientific exposition at its best; he is also interesting, as when in defining the scope of his subject, he says with almost literary *naïvete:* "The autopsy should explain why the patient was sick and why he died." But "there still remains another duty — to teach the medical student not only morbid anatomy, but what is more important to the future practitioner; to develop in him the

ability to visualize the gross morphological picture of a diseased organ in a patient supposedly suffering from the particular disease; in short, to make him *think anatomically.*" This same medical student, if among the truly chosen, will be grateful for the logical, systematic development shown in the 22 chapters, which, carefully studied by him will constitute a review of his entire medical course; if mistakenly medical as a student, he will be suitably confounded by what he does not know. But as indicated in the book's subtitle, it is more than "a manual for medical students" it is for practitioners, pathologists and coroners' physicians" as well. The legal aspects incident to custody of the dead body are full and impressively given. Dr. Saphir carefully excludes from consideration histopathologic lesions, and "explanations of primarily functional abnormalities present during life whose existence cannot be deduced from examination of the organs . . . . . The disease and death of the patient must be due to anatomically demonstrable lesions; . . . . . every demonstrable morphologic cause of disease and death must be sought, carefully evaluated and ruled out, before an explanation is given based on functional disorders." All this necessarily shows the self-evident, the unique value of autopsy in relation to the diagnosis and the treatment given the patient during life. The format of this useful volume is excellently adapted to convenience of reference and the constant need of handling. It is well bound; and its 342 pages are double-stitched so it readily lies open as desired; the print and paper are also likely to prove lasting under strenuous use. There are 25 pages of index and 65 illustrations. Keroht.

The Principles and Practice of Medicine: Designed for the Use of Practitioners and Students of Medicine. Originally written by the late Sr. William Osler, Bart, M.D., F.R.C.P., F.R.S. Revised by Henry A. Christian, M.D., LL.D., S.D., F.R.C.P. The 8th, 10th, 11th and 12th eds. revised by Thomas McCrae, M.D., F.R.C.P., 13th ed. New York and London. D. Appleton-Century Co., Inc., 1938.

THE revision of Osler's Principles and Practice of Medicine which has just appeared gives the feeling of meeting an old beloved friend after an absence of years. This is particularly true of many of the older members of the profession, when, as medical students, Osler was the text book *par excellence;* in fact, for many years without a competitor. It may be justly said without serious fear of contradiction, that this one single book, more

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than all the others combined, was the means of initiating and making efficient, competent, successful physicians and was successful in establishing the present high standard attained by the medical profession. The remarkable influence of this book can hardly be evaluated; this influence still endures and has long outlived its creator. The resuscitation of such a great contribution to the teaching of Medicine is hailed with joy and is most welcome. Slight disappointment occurs when the change in style of binding is noted but this is only slight as compared to the short Preface, which is in striking contrast to previous editions. Changes are noted in the arrangement and classification of the contents, obviously made necessary with the progress of present day knowledge particularly in the domain of etiology. On the whole, the same admirable, logical and satisfactory framework is maintained, but slightly changed here and there to keep pace with the constant progress in the science of medicine. The same is true in reference to the clinical and therapeutic presentation of the various diseases, incorporating the newer diagnostic methods, laboratory tests and particularly the advances made in treatment. Like the binding, the index, which in previous editions was a model for completeness and most satisfactory in locating desired information, has also undergone a change in style, either for better or for worse. After all, revision or no revision, good or bad, *Osler still remains Osler.* Fredrick Tice.

Injuries and Diseases of the Hip. By Fred. H. Albee, M.D., LL.D., F.A.C.S., Past President American Orthopedic Assn. Paul B. Hoeber, Inc. 100 illustrations, 298 pages.

THE stepchild of surgery is rapidly coming into its own. Too long has orthopedic surgery been thus regarded. A long and oft repeated criticism of orthopedic surgery is that a specialized equipment is required to follow the teachings of this or other orthopedicians. What with present day use and abuse of automobiles and pedestrian, hospitals and physicians are gradually beginning to realize that orthopedic equipment and expert service is not only desirous but indispensible in the treatment of manifold injuries. Dr. Albee, one of the world's outstanding orthopedicians, has contributed an invaluable book on the subject of injuries and diseases of the hip joint; a subject which, as he observes in his preface, has never been covered in any language in any one textbook. He reveals, as might be anticipated, a well-trained and well-developed mind in dealing with affections of the hip joint. The section on fractures of the neck of the femur is typical of the work. This not only can be, but is, the bugaboo of practitioners throughout the world. His line of attack on this problem is clearly and concisely stated and leaves no room for doubt in the physician's mind on exactly what to do. Similarly with the treatment on tuberculous disease, his method of treatment is lucidly described, and so it is with all other subjects covered in the book. When the number of cases are considered on which Dr. Albee has reached his conclusions, one must conclude that his opinion may be taken as the last word. His text is no collection of random thought, nor is it the work of an individual desiring to put his name in print. It is not the "amazingly wonderful" results of 2 or 3 cases which one too frequently reads in current literature. Diagnosis is simplified, by means of charts. The illustrations and X-ray photographs are clear and vivid. To repeat the prosaically trite words "to be congratulated" would be an insult to Dr. Albee. Far better is it to state that physicians throughout the world will appreciate the author's authoritative observations and definite answers to "just what shall I do" in a particular problem related to the hip joint. Thorek.

Untersuchungen Ueber Die Atiologie und Pathogenese Der Angeborenen Huftverrenkung. (Investigations concerning the etiology and pathogenesis of congenital dislocation of the hip). By Dr. Alexander Faber. Georg Thieme, Leipzig, 1938.

THE X-ray examination gives us the most valuable information concerning the congenital dislocation of the hip. An ordinary X-ray film, however, will not show us the true shape and relationship of the acetabulum and of the head in early childhood because most of these structures are cartilaginous. Of the head only a small ossification center can be seen. A much more detailed and accurate study of the condition can be made if the joint is injected with a contrast medium before taking the X-ray film. This contrast medium will cover the acetabulum and the head with a thin radiopaque film and show the exact shape of the head and the relative position of the head to the acetabulum. The writer uses Uroselektan B and describes in detail the technic of the injection. In the next chapter the writer shows how to read the normal roentgenogram of such an injected joint, how to figure out the different angles of the acetabulum and how to evaluate the distances between the ossification center and the different points of the acetabu-

lum. He points out that the cartilaginous part of the acetabulum covers more than half of the ball surface of the head of the femur. He then has made studies on two kinds of abnormal hip joints; first, on those that show a pre-disposition to dislocation without actual dislocation and second, on those that show the actual dislocation. Contrary to all expectations he found that in both of these groups the cartilaginous apparatus of the joint was perfectly normal. The lip of the acetabulum was well developed in all cases and was large enough to cover, just like in a normal hip, more than half of the head of the femur. The old belief that the acetabulum is shallow does, therefore, not hold true as far as the cartilage is concerned. He found, however, that in both of these groups there was a definite lack of ossification in the upper margin of the acetabulum—the so-called roof of the acetabulum. Thus the upper margin of the acetabulum is deprived of its osseous backing and the forces that move up the head would gradually slide it over the soft cartilaginous margin and produce a subluxation and dislocation because the normal osseous support is missing. He, therefore, believes that the etiology of the dislocation is an inhibition or retardation of the normal development of the bone, particularly in the upper margin of the acetabulum. He further believes that this faulty and insufficient ossification of the roof of the acetabulum is due to endogenous forces that are beyond our control. Proper reduction of a dislocated hip will form a good basis for further development of bone. If satisfactory ossification takes place after proper reduction the child will have a good hip. If this ossification does not take place then the head will elongate the soft cartilaginous acetabulum under the strain of normal use and gradual subluxation and dislocation will reoccur. The writer has made extensive studies of hip joints in families where dislocations occur and he believes that the predisposition to dislocation occurs about four times more often than actual dislocation. He recognizes the pre-disposition to dislocation by a shallow appearance of the bony constituents of the acetabulum and in a faulty or insufficient ossification in the upper margin of the acetabulum, as seen in the X-ray film. He believes that the actual dislocation generally takes place within the first or early within the second year of life, hardly ever in pre-natal

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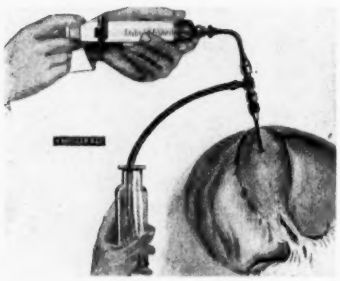

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life. If the inhibition of development is very severe it will come to a complete dislocation. If it is less severe it may later come to a Perthes disease or still later on in life to a deforming arthritis. Concluding, he states, "Primarily we are dealing with a hereditary inhibition of development (inhibition of ossification) in the region of the hip joint whereby the shape of the cartilaginous parts of the joint are at first perfectly normal. This hereditary inhibition in the development forms the basis upon which the influences of normal life produce a far-reaching and moulding effect."

Wm. A. Marshall.

Patologia Quirurgica. Craneo, Cara, Raquis, Cuello. Dr. Conrado Zuckermann, ord. Professor of Faculty of Medicine, Universidad Autonoma of Mexico. Imprenta Mundial Mexico, 1935. 430 pages.

THE present book is the first edition of a series of lectures in which the most important surgical diseases affecting the various anatomical regions are discussed. The present volume deals with diseases of the skull, face, spinal column and the region of the neck. The volumes to follow will describe pathologic entities in the thorax, abdomen, and deal with urology, gynecology and affections of the extremities. The author speaks in a very modest manner of his work as an outline. It is by far more than that. While written in outline form it embraces the most important diseases of the regions mentioned, particularly stressing the etiology, pathology, diagnosis and treatment of the condition discussed. The work is particularly useful as a ready-reference book because it is free from theoretical discussions and debatable therapeutic suggestions; but instead gives, in a brief, concise manner, only those theoretical or practical discussions which, in the opinion of the author, are best suited to the particular condition described. The general practitioner will find this work especially useful. The work is embellished with numerous clear illustrations, while diagramatic, yet stress the points the author wishes to emphasize. A comprehensive bibliography is appended to each chapter culled from Spanish, Italian and French sources. It is regrettable that the illustrations are not marked by figure numbers. An index closes the work. Statistical studies and details are the result of the author's work and those of his observations at the Mexican University. All in all, the work can be warmly recommended as practical, informative and timely.

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